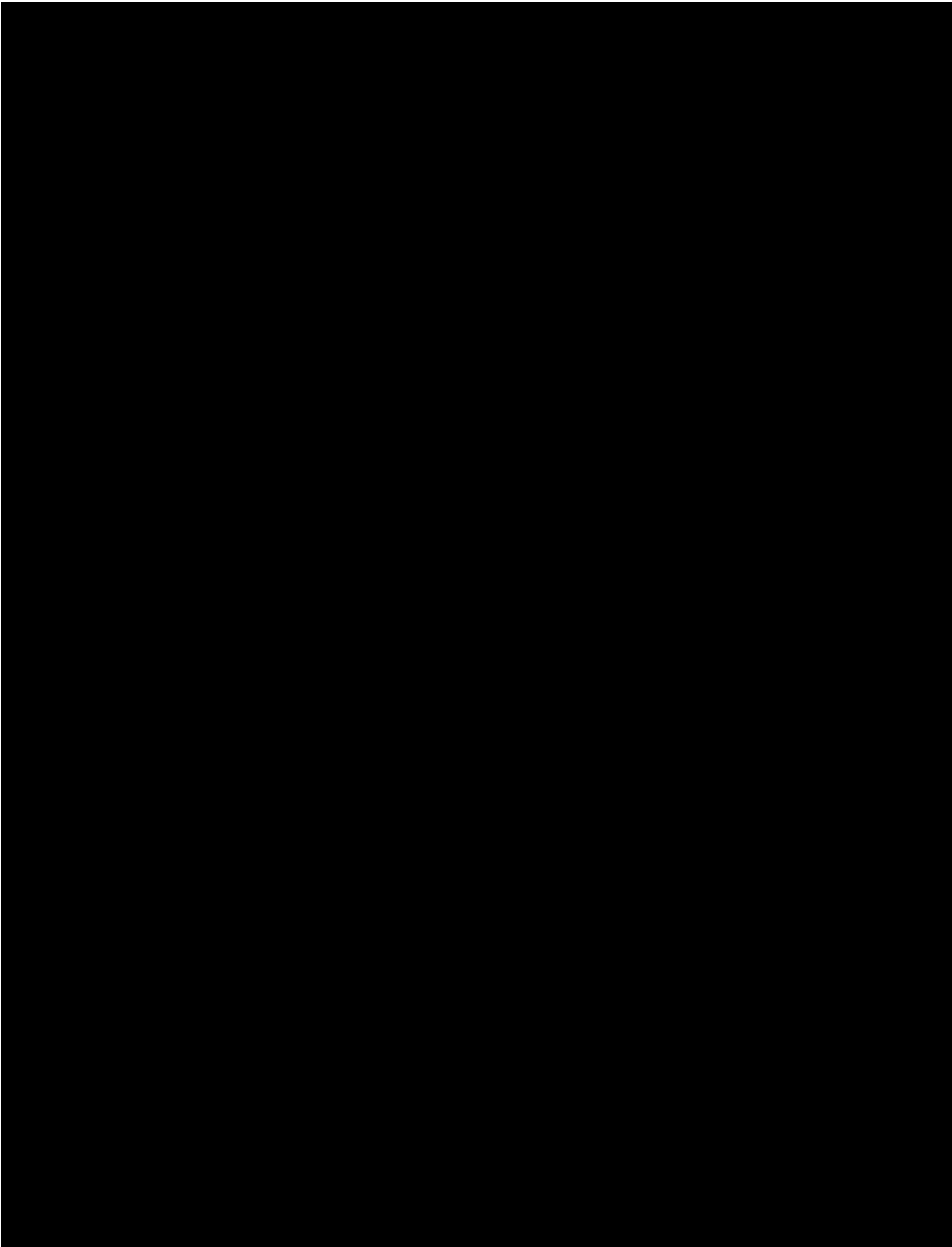


REDACTED VERSION

Exhibit A32 to C. Cramer Declaration

EXHIBIT 47



On Mon, Nov 25, 2013 at 11:09 PM, Lan Roche <lanroche@google.com> wrote:
Hey Michael,

I think that the extent of the conversation that I am aware of is that Samsung reached out to John L. with this proposal at a high level and he passed it along to Jamie / Hiroshi for a temperature check. Our leadership was luke warm on it (I think we all are ;-)) but we need to give this proposal one good run through and see if we should recommend our leadership reconsider in some form. I am not sure if there is any other context for this. Samsung is very eager to understand if we are willing to consider anything.

Thanks,
Lan

On Mon, Nov 25, 2013 at 11:22 AM, Paul Gennai <pgennai@google.com> wrote:
I haven't heard of any conversations having happened around this.

On Mon, Nov 25, 2013 at 10:56 AM, Michael Siliski <msiliski@google.com> wrote:
Paul, do you know where these conversations are at? I haven't had any conversations since the last discussion with Jamie, but if you have any updates can you pass them along?

Lan, happy to chat once I catch up on context.

On Mon, Nov 25, 2013 at 9:59 AM, Lan Roche <lanroche@google.com> wrote:
Thanks Michael. Have you seen these exact proposals before?

I would like to run through each one quickly with you to see if these proposals are (1) something we would never do (2) something we would consider doing if Samsung makes it worth our while or (3) something we will probably do on our own at some point.

Can we sit down for a short time between Thanksgiving and New Years. I need to get a feel for if there is any traction here.

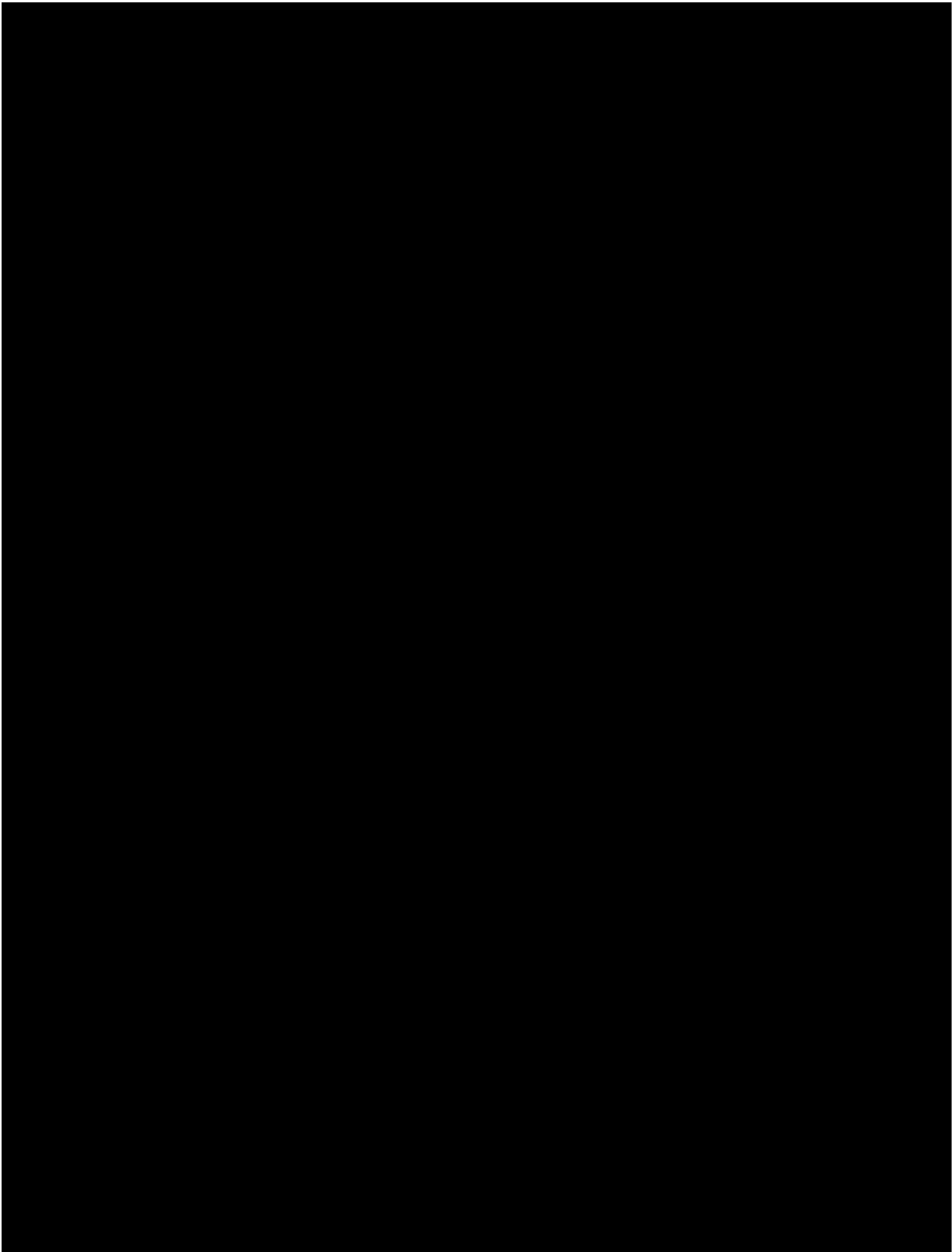
Thanks,
Lan

On Mon, Nov 25, 2013 at 8:15 AM, Michael Siliski <msiliski@google.com> wrote:
Hi Lan,

I've talked this over with Jamie a while ago, so I believe he has all my feedback. Completely agree this is a really important area and if we could arrive at an agreement it'd be a big opportunity. I don't think I have anything new to share since that initial discussion though.

On Sun, Nov 24, 2013 at 9:42 PM, Lan Roche <lanroche@google.com> wrote:
Hey Michael,

As you know, Samsung's duplication of our services on Android is one of the critical issues with the partnership right now. Samsung Apps relative to Google Play is one of the most glaring. Samsung has reached out and in effect made a proposal on the features they would



I have the smart switch deck.

Thanks,

Lan

----- Forwarded message -----

From: **Praveen Timmashetty - SISA** <praveen1.t@samsung.com>

Date: Thu, Nov 21, 2013 at 10:52 AM

Subject: RE: Invitation: Samsung Google Review @ Thu Nov 21, 2013 12:30pm - 1:20pm
(lanroche@google.com)

To: "lanroche@google.com" <lanroche@google.com>, Eric Kim - SISA
<ericcho.kim@samsung.com>

Let's use the attached document for discussion.

Praveen Timmashetty

Product Manager, Emerging Products

Media Solutions Center America (MSCA)

2665 N. First Street San Jose, CA 95134

Mobile: [408.799.8337](tel:408.799.8337) Email: praveen1.t@sisa.samsung.com

-----Original Appointment-----

From: lanroche@google.com [<mailto:lanroche@google.com>]

Sent: Thursday, November 14, 2013 11:19 AM

To: lanroche@google.com; Eric Kim - SISA; MTV-44-1-Durban (18) GVC; Praveen Timmashetty - SISA

Subject: Invitation: Samsung Google Review @ Thu Nov 21, 2013 12:30pm - 1:20pm
(lanroche@google.com)

When: Thursday, November 21, 2013 12:30 PM-1:20 PM (UTC-08:00) Pacific Time (US & Canada).

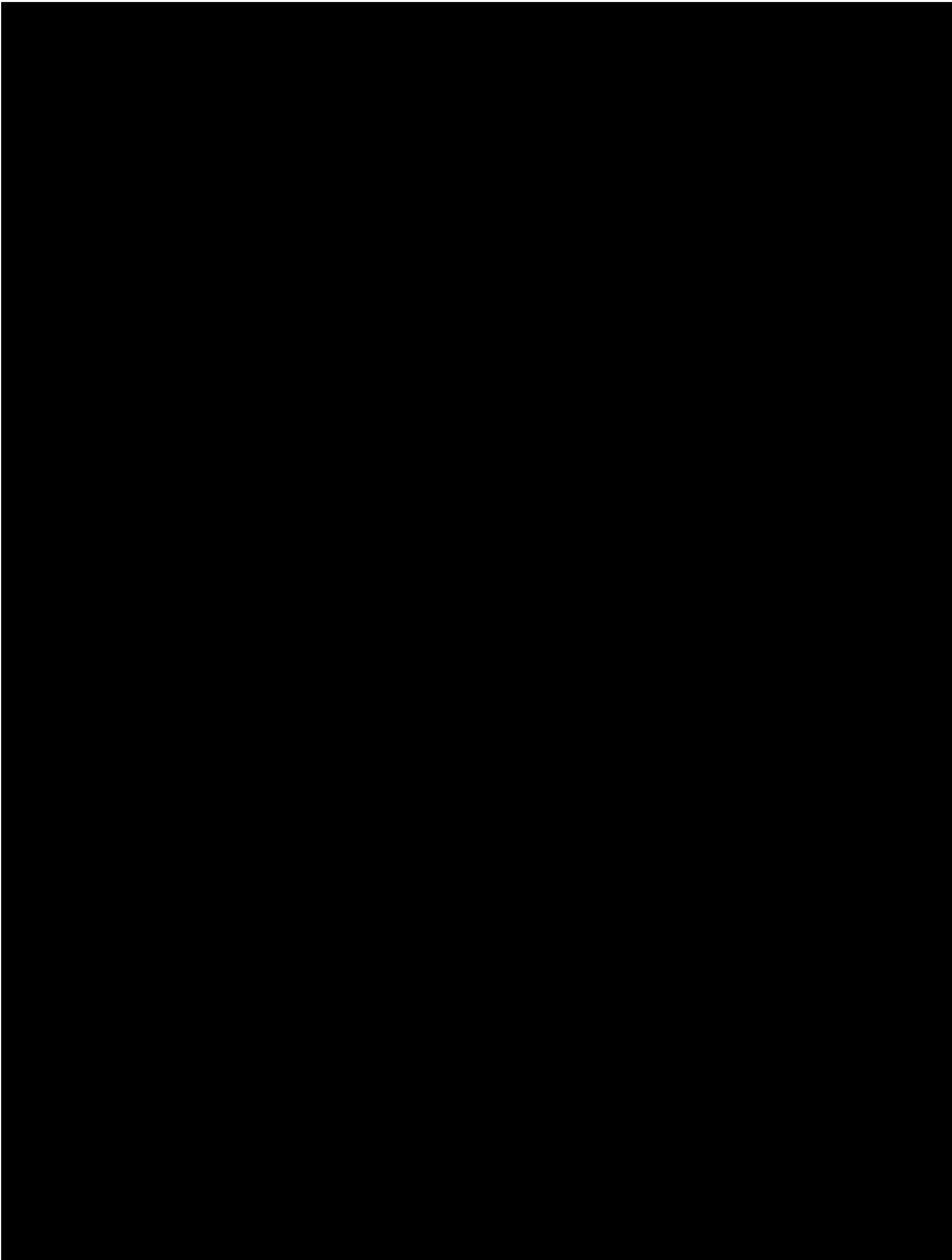
Where: MTV-44-1-Durban (18) GVC

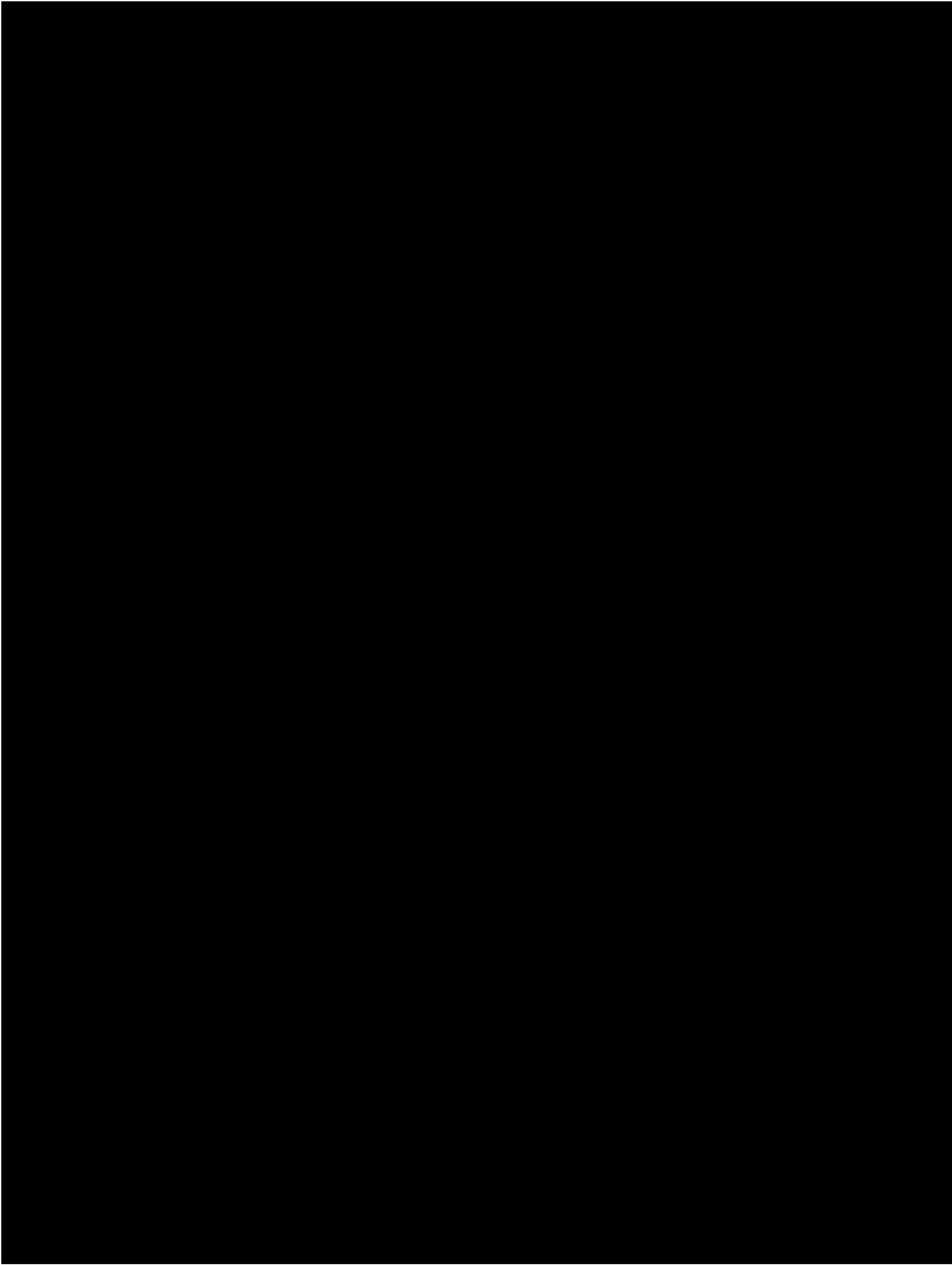
[more details »](#)

Samsung Google Review

Address 1625 Charleston Rd. Mountain View CA 94043

Agenda:





FILE UNDER SEAL

Exhibit A33
to
C. Cramer Declaration

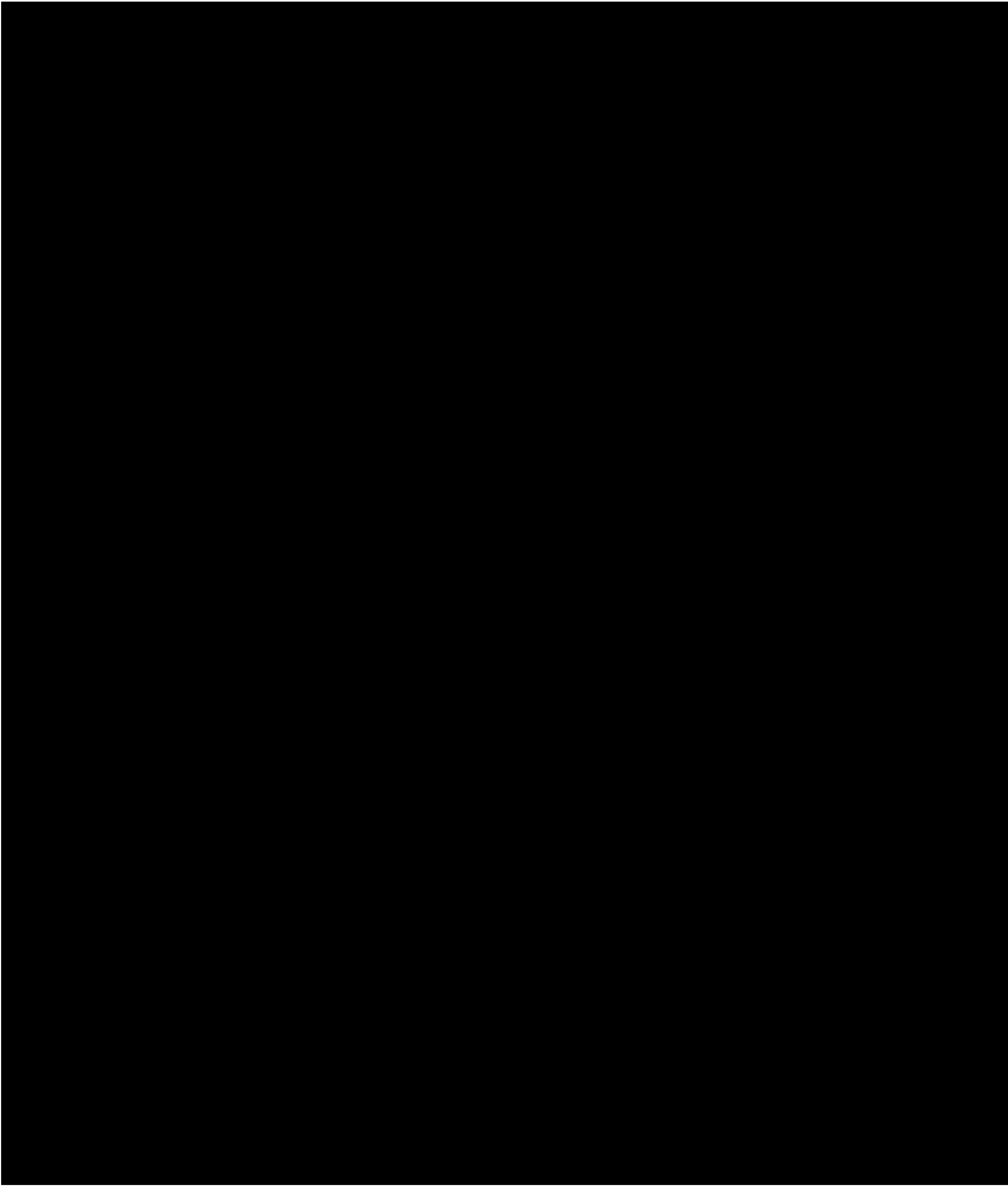
FILE UNDER SEAL

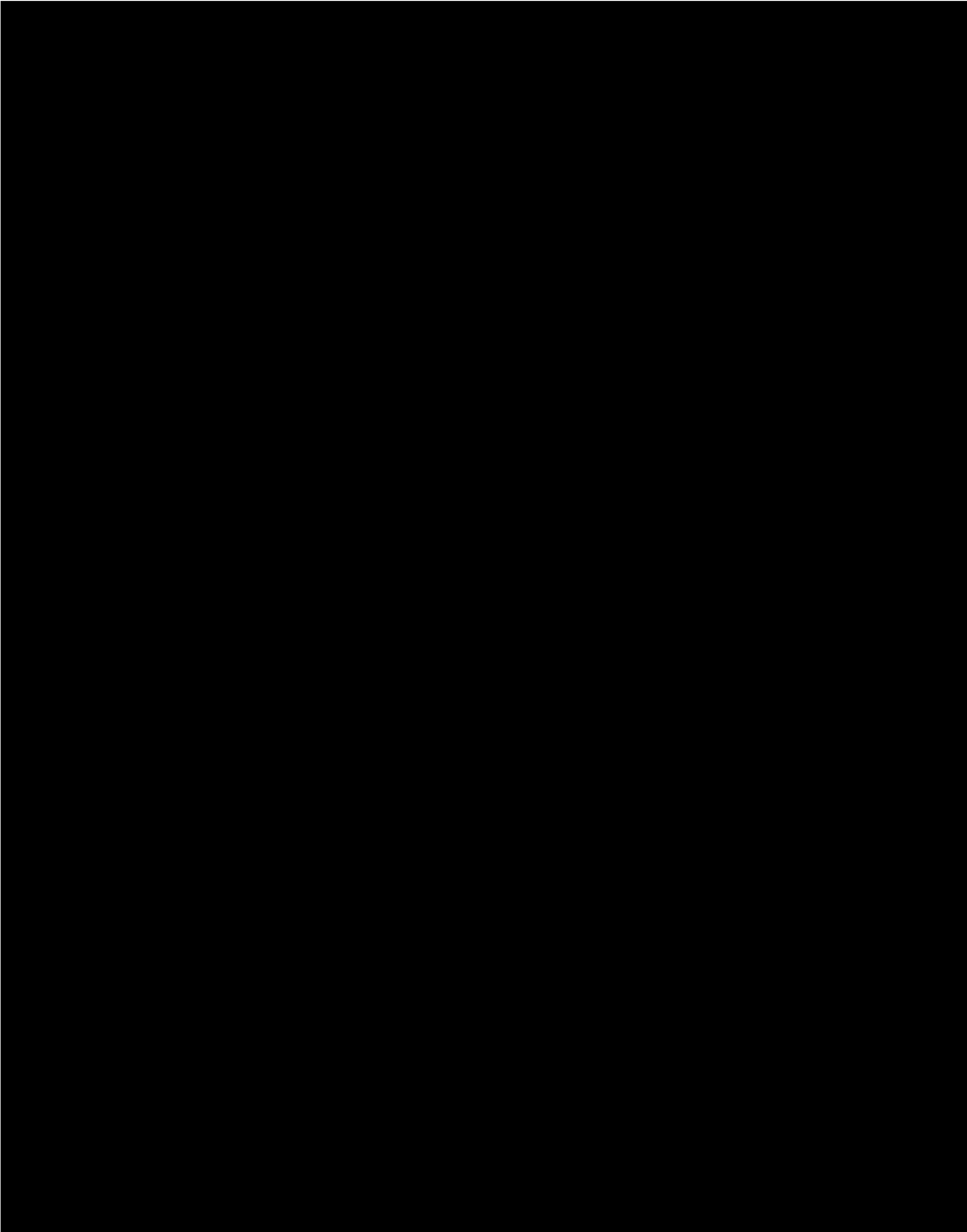
Exhibit A34
to
C. Cramer Declaration

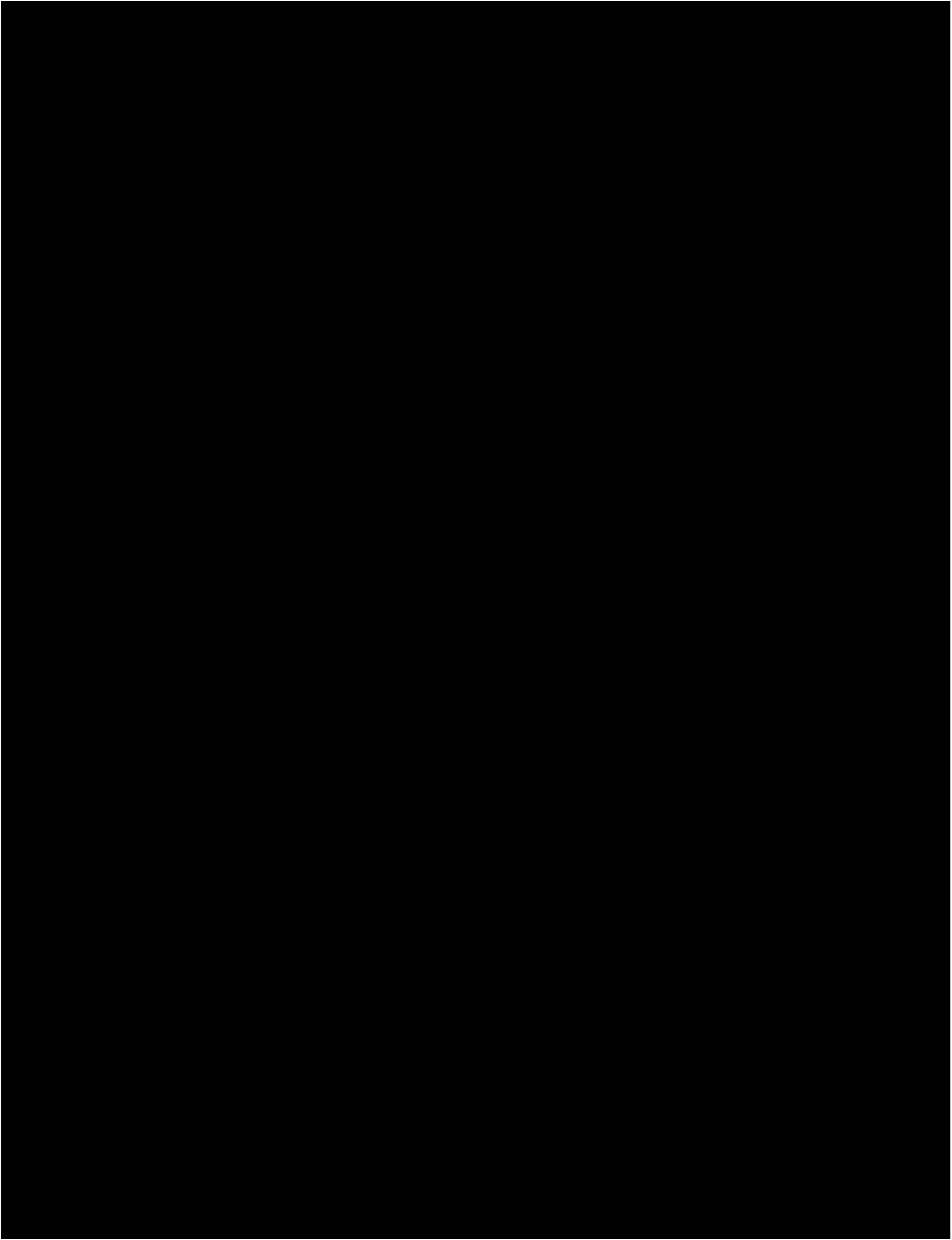
REDACTED VERSION

Exhibit A35 to C. Cramer Declaration

EXHIBIT 50

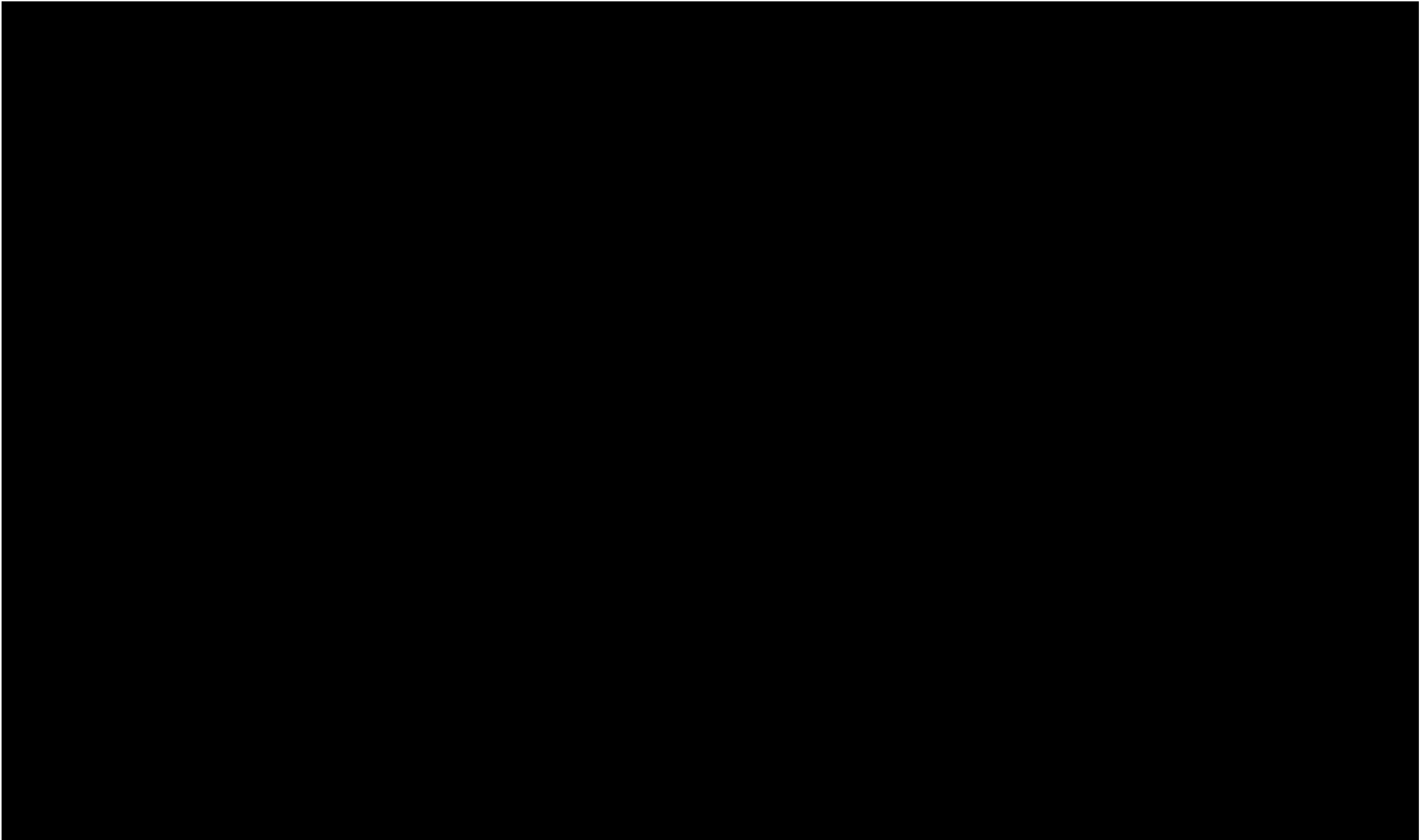


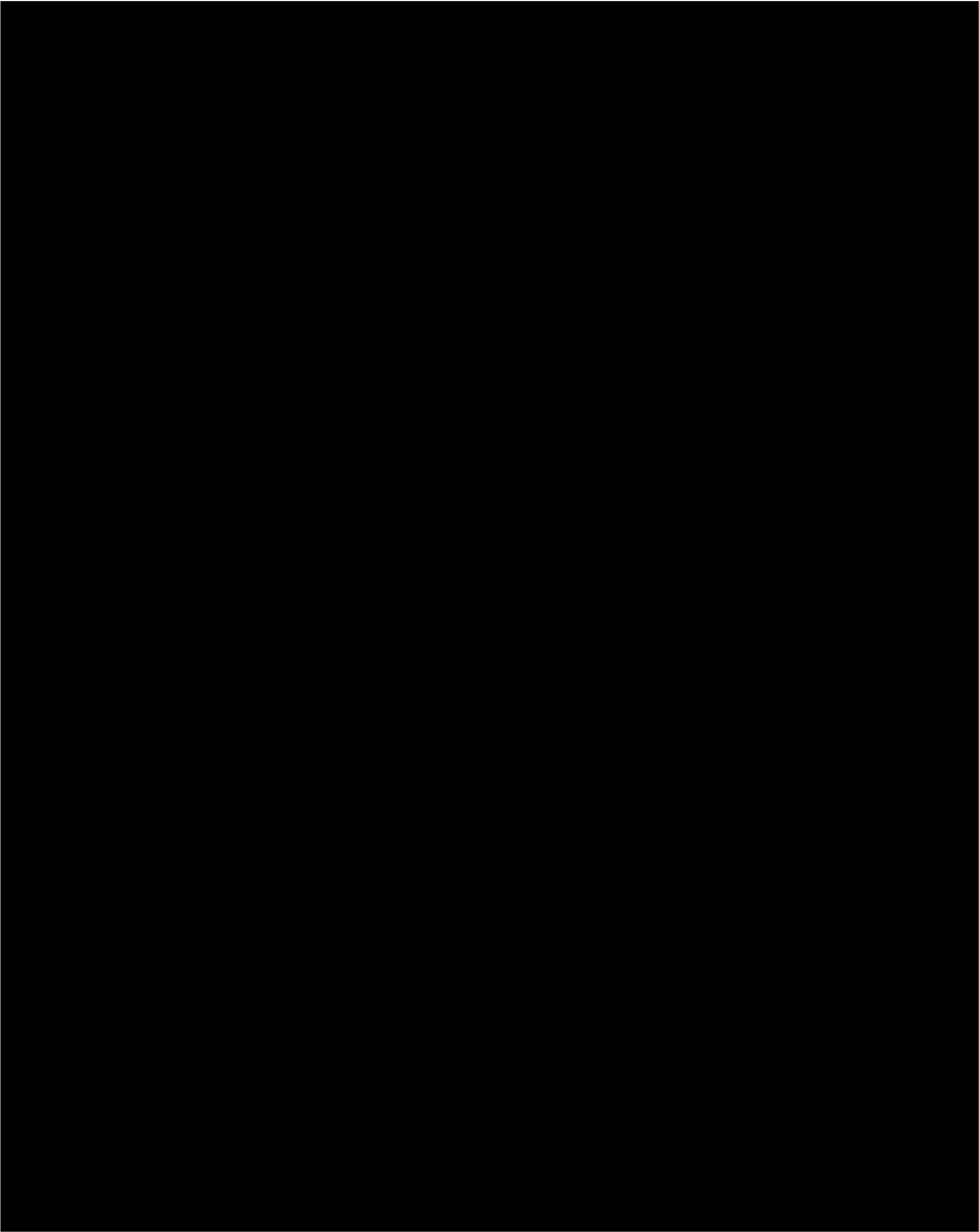


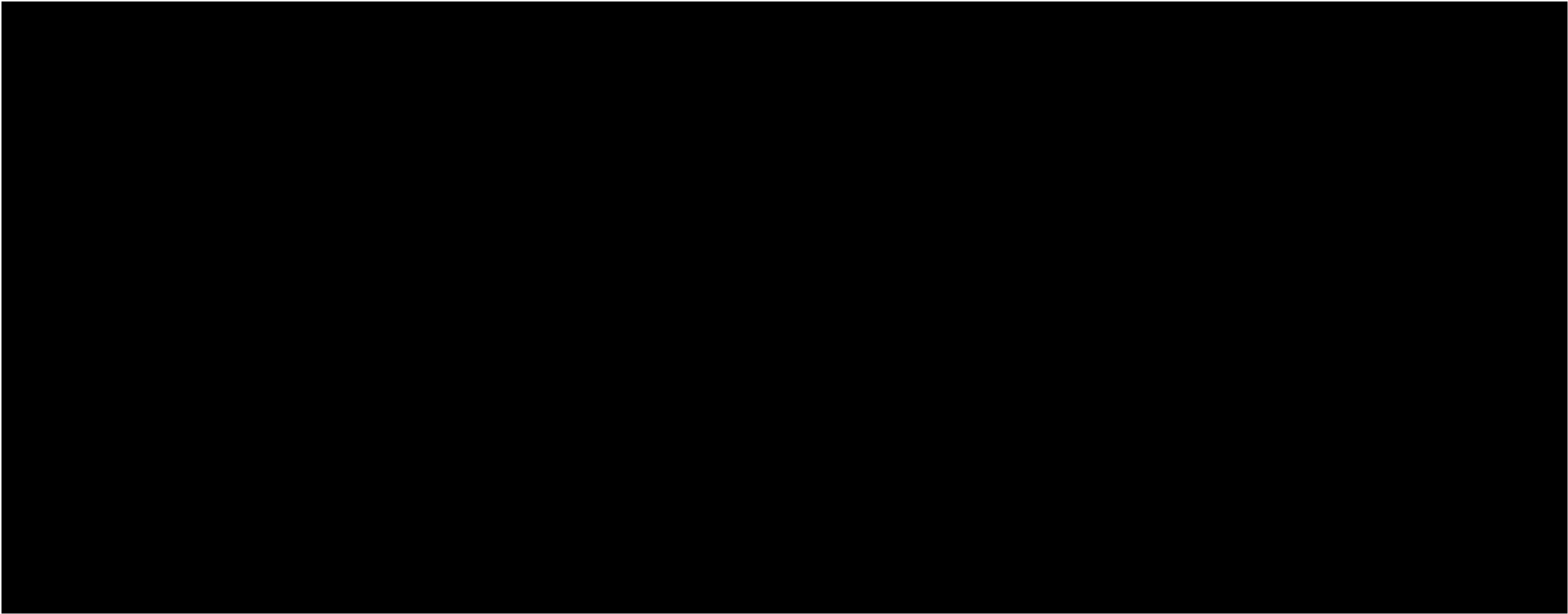


ADDITIONAL CONTEXT ONLY FOR FYI - DO NOT EXPECT THIS TO COME UP IN THE MEETING

[REDACTED]







FILE UNDER SEAL

Exhibit A36
to
C. Cramer Declaration

FILE UNDER SEAL

Exhibit A37
to
C. Cramer Declaration

REDACTED VERSION

Exhibit A38 to C. Cramer Declaration

EXHIBIT 54

Message

From: Eric Chu [REDACTED]@google.com]
Sent: 7/13/2010 6:54:36 AM
To: Andy Rubin [REDACTED]@google.com]
CC: Maarten Hooft [REDACTED]@google.com]; Hiroshi Lockheimer [REDACTED]@google.com]
Subject: Re: [REDACTED] Gaming Status Update - Guidance Requested

Hi Andy,

Below are the key bullets we came up with. Please let us know what you think. If you agree these are the right points, what are your thoughts on how/when these points should be communicated to [REDACTED]

Thanks

Eric

- Google and [REDACTED] will work together to identify an appropriate launch device for our joint initiative. We should target middle of 2011 (back to school).
- Google and [REDACTED] will jointly develop and maintain [REDACTED] as the primary game platform that will bridge portable and mobile gaming.
 - [REDACTED] must take over development and maintenance of [REDACTED] with Google. No further *lead* involvement from [REDACTED]
 - [REDACTED] needs to be included in [REDACTED] either as part of the first launch of [REDACTED] or a subsequent update (which will be at an agreed upon time).
 - [REDACTED] and Google will together encourage developers to bring their games to Z for portability between Android and [REDACTED]
 - [REDACTED] should not introduce a 4th platform, [REDACTED], to confuse developers. [REDACTED] and/or Google may choose to support Unity or other companies to provide tools that enable games portability across Android, PSP2, iOS, or other mobile platforms.
- [REDACTED] needs to work with Google to construct a business model that will be acceptable to carriers
 - Google is willing to honor the [REDACTED] revenue share for the first 90 days of new games. Afterwards, Android Market normal revenue share applies.
 - [REDACTED] revenue share to developers must be consistent and no more than the standard 70% Google provides currently.
 - Games can only be exclusive to [REDACTED] for the first 90 days.
- [REDACTED] needs to commit to a mutually agreed 1 year pipeline of sufficient number of tier-1 [REDACTED] native [REDACTED] quality titles and [REDACTED] titles. This includes a sufficient number of mutually agreed upon anchor [REDACTED] native and [REDACTED] launch titles with the availability of the first device.
- [REDACTED] launch of [REDACTED] 1st and 2nd party titles on Android must be no later than launches on other mobile devices or platforms.
- [REDACTED] needs to commit to XX amount of marketing spend to promote games in [REDACTED] on Android Market in the first year.

Andy Rubin wrote:

Agree, but you were more wishy-washy than we can be :-)

Cancel [REDACTED] for good.

Go back to [REDACTED] and ask them:

- 1) Given the [REDACTED] is canceled, here are the business terms we must address in order to get [REDACTED] gaming into Android
- 2) If the solution includes [REDACTED] [REDACTED] can't be the supplier

Why don;t you write me the list of 5 or so bullet points you want for [REDACTED] and we'll agree before moving forward.

On Mon, Jul 12, 2010 at 1:37 PM, Eric Chu [REDACTED][@google.com](mailto:[REDACTED]@google.com)> wrote:

Hiroshi, Maarten, Jennie, and I talked and we're all in agreement with the following:

Combination of the issues listed below, [REDACTED] not being able to deliver devices, & lack of time to fix these problems make this project not feasible at this point.

Assuming [REDACTED] management still can't make you feel comfortable with their ability to deliver devices tomorrow, we should cancel the [REDACTED] device project.

Since working with [REDACTED] still has value with the right deal, we should let them know that we can't launch this year due to [REDACTED]. Let them know our terms on the business side to make this interesting beyond [REDACTED]. If they can meet our terms, we should work with them to find another device to launch gaming next year.

In the meanwhile, we should double down on Stingray and get game developers on what we have today..

If you're in agreement with this direction, we need to work out details on how/when we'll communicate this to [REDACTED] and [REDACTED]. I presume we'll leverage [REDACTED] inability to deliver devices to start the conversation.

Please let Hiroshi, Maarten, & I know how you want us to proceed.

Thanks
Eric

Andy Rubin wrote:

This doesn't look good.

What is the team's consensus? Should we cancel the project?

On Mon, Jul 12, 2010 at 11:05 AM, Eric Chu [REDACTED][@google.com](mailto:[REDACTED]@google.com)> wrote:

Hi Andy,

We met with [REDACTED] Thursday and Friday to make progress on [REDACTED]

It is becoming clear is that while [REDACTED]

[REDACTED] Current model will hurt the adoption of Android Market by carriers and lock valuable games to [REDACTED]

In addition, due to [REDACTED]

[REDACTED] For example, in order to lock down the list of [REDACTED] titles, it involves [REDACTED]

Below are the details. We need your guidance to nail down our positions. We also need your help to emphasize our positions to [REDACTED] senior management to drive them to move much faster than they have been. I continue to think there's significant value for us from an Android/[REDACTED] partnership but I do think a few of these key terms need to be adjusted...

Thanks
Eric

[REDACTED] Strategy

Ownership & Evolution

[REDACTED]

Having a core part of Android controlled by an OEM long term will be a challenge. If not structured correctly, this will slow us down and make other OEMs uncomfortable with having one of their competitor control a part of Android. Z either needs to be developed privately by Google and [REDACTED] or structured as something similar to Webkit. Either way, we need to increase our staffing and influence/control the development of Z...

[REDACTED]

It is clear that nothing has changed from what they shared with us 1 month ago at the details level. [REDACTED]

Business Direction

1. **Identify the main topic of the text.**
 2. **Summarize the main points of the text.**
 3. **Identify the author's purpose.**
 4. **Identify the target audience.**
 5. **Identify the main argument.**
 6. **Identify the supporting evidence.**
 7. **Identify the conclusion.**
 8. **Identify the main theme.**
 9. **Identify the main message.**
 10. **Identify the main idea.**

[REDACTED] expiration for exclusivity and [REDACTED] revenue share. This will enable [REDACTED] to harvest most of the economic benefits of new titles while giving carriers some way of monetizing these games. Give Google/OEM the ability to not include [REDACTED] is a carrier say no....



GOOG-PLAY-005566488

project. We need your help to send a strong message to [REDACTED] senior management on the importance of this and we need to include this in the contract.

REDACTED VERSION

Exhibit A39 to C. Cramer Declaration

EXHIBIT 55

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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

-----x
IN RE GOOGLE PLAY STORE Case No.
ANTITRUST LITIGATION 3:21-md-02981-JD

THIS DOCUMENT RELATES TO:
Epic Games Inc. v. Google LLC, et al.,
Case No: 3:20-cv-05671-JD

In re Google Play Consumer
Antitrust Litigation,
Case No: 3:20-cv-05761-JD

In re Google Play Developer
Antitrust Litigation,
Case No: 3:20-cv-05792-JD

State of Utah, et al.,
v. Google LLC, et al.,
Case No: 3:21-cv-05227-JD

-----x
HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

VIDEOTAPED DEPOSITION OF
PAUL BANKHEAD
Thursday, May 12, 2022
Volume 2

Reported By: Lynne Ledanois, CSR 6811

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

-----x
IN RE GOOGLE PLAY STORE Case No.
ANTITRUST LITIGATION 3:21-md-02981-JD

THIS DOCUMENT RELATES TO:
Epic Games Inc. v. Google LLC, et al.,
Case No: 3:20-cv-05671-JD

In re Google Play Consumer
Antitrust Litigation,
Case No: 3:20-cv-05761-JD

In re Google Play Developer
Antitrust Litigation,
Case No: 3:20-cv-05792-JD

State of Utah, et al.,
v. Google LLC, et al.,
Case No: 3:21-cv-05227-JD

-----x
Videotaped deposition of PAUL BANKHEAD,
taken at MORGAN LEWIS & BOCKIUS, 1400 Page Mill
Road, Palo Alto, California, commencing at 9:01
a.m., on Thursday, May 12, 2022, before Lynne
Ledanois, Certified Shorthand Reporter No. 6811.

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Page 224

APPEARANCES

Counsel for Plaintiff Epic Games, Inc. in:
Epic Games, Inc. v Google LLC, et al:

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BY: YONATAN EVEN

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Sweat Basketball, Inc:

HAGENS BERMAN SOBOL SHAPIRO LLP

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///

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Page 225

APPEARANCES

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BY: JONATHAN KRAVIS

DANE P. SHIKMAN

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///

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APPEARANCES

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Counsel for State of Utah:

LIEFF CABRASER HEIMANN & BERNSTEIN LLP

BY: BRENDAN GLACKIN

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San Francisco

bglackin@agutah.gov

ALSO PRESENT:

Kevin McMahon, Videographer

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1 Veritext; I'm the videographer. The court reporter
2 is Lynne Fred the firm Veritext.

3 I'm not related to any party in this
4 action, nor am I financially interested in the
5 outcome.

6 Counsel have already stated their
7 appearances in Volume 1. If there are any
8 objections, please state them.

9 The court reporter may now administer the
10 oath.

11 THE REPORTER: The witness was previously
12 sworn. Go ahead, counsel.

13
14 PAUL BANKHEAD,
15 having been previously sworn, testified as follows:

16
17 EXAMINATION

18 BY MR. EVEN:

19 Q Good morning, Mr. Bankhead. Thank you for
20 joining us again.

21 Are you ready to proceed with the
22 deposition?

23 A Yes.

24 Q And you understand you're still under
25 oath?

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

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1 A Yes.

2 Q A couple of housekeeping issues, one is
3 you mentioned yesterday that you knew that Mr. Samat
4 and Mr. Rosenberg were deposed in this case;
5 correct?

6 A Yes.

7 Q And you mentioned that you knew that
8 because you asked counsel about that; right?

9 A Yes.

10 Q What prompted you to ask counsel about
11 Mr. Samat and Mr. Rosenberg specifically?

12 MR. KRAVIS: Paul, in answering the
13 question, I'll just instruct you not to reveal the
14 content any of communications between you and
15 counsel.

16 THE WITNESS: Curiosity.

17 BY MR. EVEN:

18 Q Were you curious about anyone other than
19 Mr. Samat and Mr. Rosenberg?

20 A No.

21 Q Why did they stand out in your mind as
22 people who you were curious about?

23 A I don't know.

24 Q While you were working at Google, did you
25 use text for business purposes?

HIGHLY CONFIDENTIAL - ATTORNEYS' EYES ONLY

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1 that came in I believe yesterday. Subject to that
2 reservation, I pass the witness.

3 Off the record.

4 THE VIDEOGRAPHER: We're going off the
5 record. The time is 3:31 p.m.

6 (Recess taken.)

7 THE VIDEOGRAPHER: We're back on the
8 record. The time is 3:33 p.m.

9 Please proceed.

10 EXAMINATION

11 BY MR. KRAVIS:

12 Q Good afternoon, Mr. Bankhead.

13 A Good afternoon.

14 Q I'm going to ask you just a few questions
15 now about some of the topics that we've covered over
16 the last few days if that's all right.

17 A Okay.

18 Q You understand that you're still under
19 oath; right?

20 A Correct.

21 Q I would like to direct your attention now
22 to what has previously been marked as Plaintiff's
23 Exhibit 910.

24 I would like you to turn to the page of
25 Plaintiff's Exhibit 910 that ends with the Bates

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1 Number 0411 in the bottom corner.

2 Do you see that?

3 A Yes.

4 Q About three-quarters of the way down the
5 page, there is an email written by you on
6 August 24th, 2016 at 9:00 a.m.

7 Do you see that?

8 A Yes.

9 Q On the first bullet you write, "I think we
10 all agree that it's really bad for the ecosystem and
11 users for FB to start installing 3P APKs."

12 FB, is that Facebook?

13 A Yes.

14 Q And 3P, is that third party?

15 A Yes.

16 Q What does it mean for Facebook to start
17 installing 3P APKs?

18 A It means that Facebook, through some
19 technical means, likely through their headless app
20 installer, would install apps at Facebook's discretion
21 on the user's phone without -- just that.

22 Q And why in your view was that really bad
23 for the ecosystem and users -- actually, let's start
24 with ecosystem.

25 Why in your view was it really bad for the

1 ecosystem?

2 A It would require additional work for
3 developers because they would have to -- in addition
4 to submitting their app to the Play Store for
5 distribution, if they wanted to set up an advertising
6 campaign on Facebook, they would also have to go to
7 the effort of submitting that APK to Facebook, who I
8 do not believe had the infrastructure to do some of
9 the advanced targeting and selection required to make
10 sure that when a user gets an app, that it actually
11 works in their country and on their device.

12 Also, for the ecosystem, it would --
13 because those developers were unlikely to change the
14 package name of their -- they were likely to submit
15 a similar version or the same version as what was
16 submitted on Play, but it could have the same
17 package name or not.

18 And it could end up in a situation where
19 neither Facebook or Google or the other app stores
20 on the device could, upon inspection, understand who
21 had installed this app and, therefore, who should
22 update it and when it should be updated, which could
23 sow confusion.

24 Q How about users, how would it be really
25 bad for users?

1 A Users in my opinion would have had a
2 situation where they were much more likely to
3 accidentally install software on their phone given how
4 aggressive Facebook was being with their treatment,
5 which could bloat their device and leave them with a
6 bad experience on their Android device.

7 They could also become confused if app
8 clobbering or app updating between various app
9 stores or packages with app stop permissions took
10 place, they could lose track of what was the status
11 of their app.

12 Q In the next sentence you write, "The
13 question is how best to structure AlleyOop to
14 motivate FB to avoid going down that path."

15 Now, how was it that AlleyOop would
16 motivate Facebook to avoid installing third-party
17 APKs?

18 A We felt that we could increase the
19 conversion rate from the ad click to the app install
20 relative to the traditional deep link experience to an
21 extent that Facebook would not -- would see some of
22 the revenue upside of -- that Facebook would have not
23 give up all of the revenue upside associated with
24 doing by themselves relative to the original deep
25 link.

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1 Q The idea was that AlleyOop would be one
2 alternative to Facebook to avoid the practice that
3 you're describing as really bad for the ecosystem
4 and for users. Is that fair to say?

5 A Yes.

6 MR. GLACKIN: Object to form.

7 BY MR. KRAVIS:

8 Q In the third bullet down here you write,
9 "I think of this as negotiations with a country who
10 wants to go nuclear. It's bad for the world, so we
11 give them something they want in exchange for
12 slowing or stopping development of their nuclear
13 program."

14 What did you mean by that, this is like
15 negotiations with a country who wants to go nuclear?

16 MR. EVEN: Objection, form.

17 BY MR. KRAVIS:

18 Q You can answer.

19 A What I mean is that in this case, having app
20 install permissions on the device is a very
21 significant power for good and for evil on the device
22 and in general, having that be spread too widely
23 increases user confusion and security risks, which is
24 the bad part of it.

25 In the case of Facebook, I didn't -- I

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1 wasn't aware of a business problem that they had
2 that required them to do this and so I felt like we
3 could solve their business problem without giving
4 them -- without them necessarily needing to acquire
5 these, install and update permissions and then
6 everybody theoretically should have been happy.

7 Q So in this analogy, the nuclear power is
8 the ability to install third-party APKs?

9 A Yes.

10 Q On the next page, the next bullet, you
11 write, "AlleyOop is essentially [REDACTED]

12 [REDACTED]
13 [REDACTED]
14 [REDACTED]
15 [REDACTED]

16 First of all, when you wrote here
17 "AlleyOop is essentially [REDACTED]
18 [REDACTED] did you mean like [REDACTED]
19 [REDACTED] or did you mean something else?

20 MR. EVEN: Objection.

21 THE WITNESS: Something else.

22 BY MR. KRAVIS:

23 Q What did you mean?

24 A What I meant is that [REDACTED]
25 [REDACTED]

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1

2

3

4

Q When you say here, "so they don't fragment the ecosystem," what did you mean by that?

5

6

What did you mean by "fragment the ecosystem" in this context?

7

8

A I meant requiring developers to submit apps to multiple places in order to have app discovery happen on Facebook. And for users to have to deal with multiple apps on their phone updating other apps in the -- in an inordered manner.

9

10

11

12

13

Q In this context in the sense in which you used the term in this email, is fragmenting the ecosystem good for the Android ecosystem or bad for the Android ecosystem or something else?

14

15

16

17

MR. EVEN: Objection.

18

THE WITNESS: In this wording, fragmented -- fragmentation would be considered bad for the ecosystem.

19

20

21

BY MR. KRAVIS:

22

Q Why in this context would fragmenting the ecosystem be bad for the Android ecosystem?

23

24

A It's more work for Facebook. It's more work for the developers and more confusion for the users.

25

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1 I, LYNNE M. LEDANOIS, a Certified
2 Shorthand Reporter of the State of California, do
3 hereby certify:

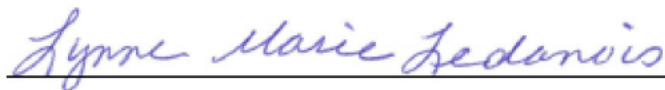
4 That the foregoing proceedings were taken
5 before me at the time and place herein set forth;
6 that a record of the proceedings was made by me
7 using machine shorthand which was thereafter
8 transcribed under my direction; that the foregoing
9 transcript is a true record of the testimony given.

10 Further, that if the foregoing pertains to
11 the original transcript of a deposition in a Federal
12 Case, before completion of the proceedings, review
13 of the transcript [X] was [] wasn't requested.

14 I further certify I am neither financially
15 interested in the action nor a relative or employee
16 of any attorney or party to this action.

17 IN WITNESS WHEREOF, I have this date
18 subscribed my name.

19
20 Dated: May 13, 2022.
21
22
23



24 _____
LYNNE MARIE LEDANOIS

25 CSR No. 6811

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In Re Google Play Store Antitrust Litigation

5/12/2022 - Paul Bankhead, V2 (#5122898)

ACKNOWLEDGEMENT OF DEPONENT

I, Paul Bankhead, do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted above to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

Paul Bankhead

Date

*If notary is required

SUBSCRIBED AND SWORN TO BEFORE ME THIS

_____ DAY OF _____, 20____.

NOTARY PUBLIC

REDACTED VERSION

Exhibit A40 to C. Cramer Declaration

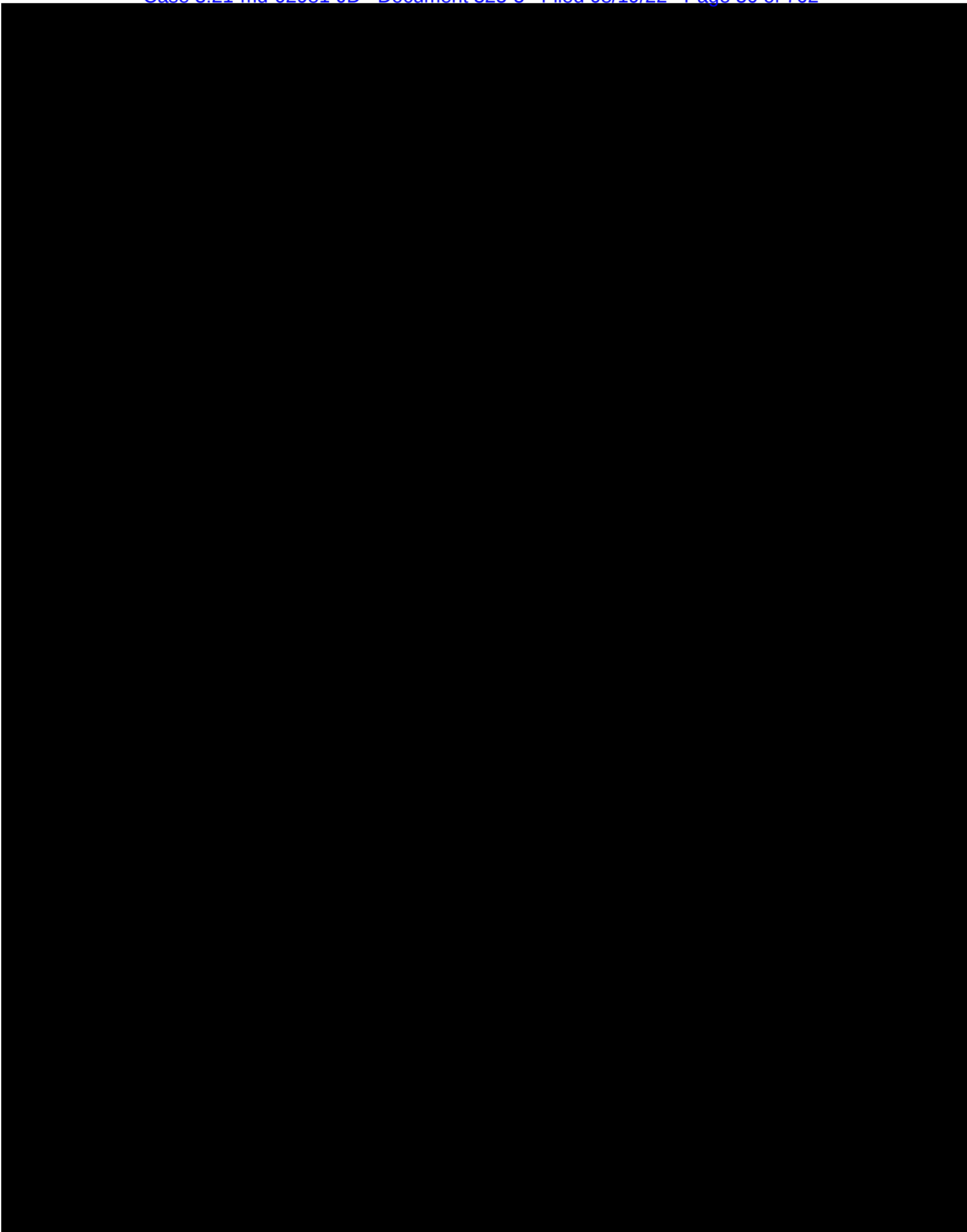
EXHIBIT 56




Play Business Model Thoughts

Attorney client privileged

Confidential + Proprietary



Id	Date	Text
1	04/19/2019 17:00:34	or services



What Developers value vs Play's offering



What is the value for Play customers?

All of the developers who are *out-of-scope* for GPB (Play Billing) receive the benefits of:

1. Play's distribution network across 2.6B Android devices
2. Play Protect
3. Play Console tools (Beta testing, pre-launch reporting, store listing experiments, etc.)
4. App updates

Apps required to use GPB get the following value:

1. Secure payment platform
2. Access to market-specific FOPs such as DCB, Gift cards
3. New features such as Account Hold, Wolverine, Free Trial etc.
4. Billing customer service


Source: Sam Tolomei deck ([LINK](#))

Value received for free appears to be much larger than value paid for


PRIVILEGED AND CONFIDENTIAL



Id	Date	Text
2	04/22/2019 05:08:22	Google Play Billing?
1	04/22/2019 05:08:22	Yup.



Id	Date	Text
3	04/19/2019 17:05:59	Negative values here are counterintuitive unless they is some netting out going on.



Sources of value

Outcomes / Performance based (similar to AdWords)

- Per user bounties (CPA)
- Per install fee
- Per renewal conversion

Services based (similar to Cloud)

- Android services
- Distribution
- App servicing
- Engagement
- Transactions
- Customer service...



Approaches

Vary rev share / economics, keep model similar

- Based on vertical
- Tiered, based on scale
- Tiered, based on level of service
- Sharebacks
 - Performance based sharebacks
 - Marketing spendbacks

Charge for on something else

- Outcomes
- Services
- Physical goods transactions
- Nothing! (Build a revenue model based on platform-level / Google-wide (ads, etc) benefits.)



Potential new models for consideration based on 2 approaches:

1. Performance based (pay per...)
2. Services based (pay for...)

PRIVILEGED AND CONFIDENTIAL




No change

Keep rev share @ 30%

<p>Pros</p> <ul style="list-style-type: none"> - Consistent, easy - Aligns with iOS 	<p>Cons</p> <ul style="list-style-type: none"> - No rationale, other than copying Apple - Already showing as untenable for many apps/games developers - Only applicable to developers who use in-app digital goods 	<p>Impact</p> <ul style="list-style-type: none"> - ~\$2B impact on 2018 consumer spend if we lose any 3 of top 10 devs on GPB - Impending subscription dev "apocalypse" <ul style="list-style-type: none"> - many devs do not see economics working on Android vs iOS - Observe not using GPB
--	--	---

PRIVILEGED AND CONFIDENTIAL

Source: Sam Tolomei deck ([LINK](#))



Performance Based

App distribution based business model

Charge devs based on app updates/active install base, reflecting value of consumption by devs

Pros	Cons	Impact*
<ul style="list-style-type: none"> - Revenue no longer focuses on small group of in-app digital good devs - Easy to understand -- "You pay for what you use" - 50% discount vs iOS rev share, aligns with LTV - Renders GPB no longer a focal point 	<ul style="list-style-type: none"> - Introduces dis-incentive for large user bases - Changes economics of existing business models-- heavily penalizes OEMs pre-installed apps - Treats all app updates/installs equally, while user LTV differs by region - Large partners suddenly get a very large bill-- unlikely if they will go along with it. 	<ul style="list-style-type: none"> - Google's apps account for 33% of all app updates/active installs, so Google gets a \$1.8B bill - - Economics come out to ~\$0.05 per active install


Source: Sam Tolomei deck ([LINK](#))

PRIVILEGED AND CONFIDENTIAL

* Using 2018 revenue from GPB rev share, proportionally allocated based on active device installs/updates
 * Does not account for how install was acquired
 * Assumes a 6% rev share (breakeven) on in-app digital transactions

Google Play

Id	Date	Text
1	04/08/2019 16:21:56	this may be a good thing for the ecosystem



Services Based

Rev share on all in-app transactions -- physical + digital

Rev share on all in-app commerce, not just digital goods

Pros	Cons	Impact**
<ul style="list-style-type: none"> - Revenue no longer focuses on small group of in-app digital good devs, but focuses on all commerce* - Provides secure payment solution for ALL transactions - Generates many new FOPs / NPU's 	<ul style="list-style-type: none"> - Will likely face severe backlash from established commerce players (Amazon, Walmart) - Internally politically disastrous - Likely pushes payments to mWeb from in-app - Provides disincentive to invest in Android vs iOS app - DCB not permitted for physical goods today 	<ul style="list-style-type: none"> - ~1B new FOPs generated on Android - Potential for strong new revenue growth due to business


Source: Sam Tolomei deck ([LINK](#))

* Could potentially scope in ads, though would be very very difficult
** Rev share model is very TBD

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Google Play

Id	Date	Text
4	04/22/2019 05:07:00	DCB = ???
2	04/22/2019 05:07:00	(Direct Carrier Billing)



Services Based


Change to 20% rev share

New rev share is 20%

Pros	Cons	Impact
<ul style="list-style-type: none"> - Brings Play rev share in-line with upper end of desktop gaming stores - 50% discount vs iOS rev share, which accounts for lower user LTV on Play vs iOS 	<ul style="list-style-type: none"> - No rationale for 20% vs any other number other than competitive benchmark (link) - Unclear if 20% retains future Fortnites - Only applicable to developers who use in-app digital goods 	<ul style="list-style-type: none"> - \$2.4B in revenue impact on 2018 consumer spend - <i>(likely extreme case, as it does not account for increased volume of purchases at lower rev share)</i>

PRIVILEGED AND CONFIDENTIAL

Source: Sam Tolomei deck ([LINK](#))



Hybrid

20% rev share but 1st \$100K earned @ 0% rev share

Creates an Indie-dev carve-out to support diverse ecosystem and fledgling startups

Pros	Cons	Impact
<ul style="list-style-type: none"> - Gives Indie creators a break, fighting narrative that small creators will struggle on Play - Brings Play rev share in-line with upper end of desktop gaming stores - 50% discount vs iOS rev share, aligns with LTV 	<ul style="list-style-type: none"> - May upset larger devs that they get no break (unlike Valve) - No rationale for 20% vs any other number other than competitive benchmark (link) - Unclear if 20% retains future Fortnites - Only applicable to developers who use in-app digital goods 	<ul style="list-style-type: none"> - \$2.7B in revenue impact on 2018 consumer spend (\$240M impact for indie-carve out, \$2.4B for overall rev share decrease to 20%) - <i>(likely extreme case, as it does not account for increased volume of purchases at lower rev share)</i>

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Source: Sam Tolomei deck ([LINK](#))

Google Play

Hybrid

FOP usage based transactions

Variable rev share based on FOP selected

Pros	Cons	Impact**
<ul style="list-style-type: none"> - Pay for value you use-- if devs only use credit cards in Western market, we'd account for that - Clear "pay to play" in regions where DCB & store credit is meaningful - Showcases power of GPB (DCB is 22% of commerce, Store Credit 13% globally) 	<ul style="list-style-type: none"> - Creates incentive for devs to steer users towards cheaper FOPs - FOP rev shares not too dissimilar -- 4.5% for CC, ~8% for DCB (10% for gift cards) - Penalizes devs focused on DCB / emerging markets, as they'd pay higher rates for already lower LTV users - Potentially stronger disincentive to pursue NBU 	<ul style="list-style-type: none"> - <i>Requires direction on if we are OK with lower revenue</i> - Very TBD on how would price margin for FOPs

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Source: Sam Tolomei deck ([LINK](#))

Google Play

Outlier

GPB becomes non-exclusive-- allow 3rd party payments

GPB begins to compete on price/services for business across digital and non-digital goods

Pros

- Promotes competition
- Showcases GPB's billing success and global footprint-- DCB and credits are already available
- Provides a native, secure payment solution for physical goods

Cons

- Apple could offer a billing alternative on Android
- Likely "race to the bottom" on pricing vs Stripe, competitors
- DCB not an issue for physical goods today

Impact**

- xxxM New FOPs
- Strong new revenue source, or huge negative impact on revenue, depending on adoption/disintegration

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Source: Sam Tolomei deck ([LINK](#))



Id	Date	Text
2	04/08/2019 16:31:41	combining this with ala carte for other services could be interesting. Drive strict x-action costs very low while looking for other value added services of Play.



Some links...

- Sam's deck ([LINK](#))
- Paul's brainstorm doc ([LINK](#))
- Mike's model ([LINK](#))
- Old PPS with some ideas ([LINK](#))
- Banyan deck ([LINK](#))

Google

Confidential + Proprietary

EXHIBIT 59

1
2 UNITED STATES DISTRICT COURT
3 FOR THE NORTHERN DISTRICT OF CALIFORNIA
4 SAN FRANCISCO DIVISION
5 -----X
6 IN RE GOOGLE PLAY STORE ANTITRUST
7 LITIGATION,

8 Case No. 3:21-md-02981-JD

9 THIS DOCUMENT RELATES TO:

10 Epic Games Inc. v. Google LLC, et al.
11 Case No.: 3:20-cv-05671-JD

12 In re Google Play Consumer Antitrust
13 Litigation
14 Case No.: 3:20-cv-05761-JD

15 In re Google Play Developer Antitrust
16 Litigation
17 Case No.: 3:20-cv-05792-JD

18 State of Utah, et al. v. Google LLC, et al.
19 Case No.: 3:21-cv-05227-JD

20 -----X

21 ** HIGHLY CONFIDENTIAL **
22 REMOTE VIDEOTAPED DEPOSITION OF
23 DANIEL EGERTER
24 Thursday, January 20, 2022

25 Reported By:
Linda J. Greenstein

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January 20, 2022

8:35 A.M. PST

Highly Confidential Remote Videotaped
Deposition of Daniel Egerter, taken by
Defendant, before Linda J. Greenstein, a
Shorthand Reporter and Notary Public within
and for the State of New York.

A P P E A R A N C E S: (All Via Remote)

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A P P E A R A N C E S: (Continued)

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Also Present:
Howard Brodsky, Videographer
Jake Franks, Veritext Concierge

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER

2 Will the court reporter please
3 swear in the witness.

4 DANIEL EGERTER,
5 having been first duly sworn/affirmed, was
6 examined and testified as follows:

7 EXAMINATION BY

8 MR. MACH:

9 Q. Good morning, sir. It's a
10 pleasure to meet you.

11 Can you hear me -- can the
12 witness hear me?

13 A. Yes.

14 Q. Could you pronounce your last
15 name for me, please?

16 A. Egertter.

17 Q. Egertter; is that right?

18 A. Yes, Egertter.

19 Q. Egertter, okay. I'm going to do
20 my best to get that straight in the course
21 of the day today. Thank you, sir.

22 And where do you currently
23 reside?

24 A. [REDACTED]
25 [REDACTED]

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER
2 anything if you win the case?

3 A. I -- I haven't heard about
4 receiving anything for participating in
5 this case, no. I don't expect.

6 MR. MACH: If we could please
7 mark as Defense Exhibit 87 the
8 document that's marked 02 and in the
9 title it says "Consolidated Second
10 Amended Class Action Complaint."

11 And, Mr. Egarter, you should see
12 that appear in a moment in the "Marked
13 Exhibits" folder. You'll probably
14 have to refresh.

15 (Defense Exhibit 87
16 marked for identification, multi-page
17 document, complaint.)

18 BY MR. MACH:

19 Q. While that's loading, let me ask
20 a preliminary question.

21 Have you seen the complaint that
22 was filed in this case?

23 A. Yes.

24 Q. On behalf of the class
25 plaintiffs?

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER

2 A. Yes.

3 Q. And did you review it before it
4 was --

5 A. Yes, yes. As a layperson.

6 Q. Has what's been marked as
7 Exhibit 87 appeared in your "Marked
8 Exhibits" folder?

9 A. Yeah, it just showed up.

10 Q. Great. Would you mind loading
11 that for me? It may take a moment.

12 Do you recognize this as the
13 complaint that you reviewed? You see it
14 was filed on December 20, 2021.

15 A. It looks like a lot -- a lot of
16 things I've seen.

17 I'm looking for my signature.

18 Q. I don't think this is a document
19 you would have signed, sir. I'll just
20 contribute that.

21 I'm just asking whether you
22 believe it to be a version of the complaint
23 that you've seen.

24 A. Quite possibly. I mean, it's a
25 long -- it's a long document. I -- I don't

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER

2 Google Play Store.

3 Q. Okay. Scroll with me --

4 A. Is that referring to a specific
5 -- specific entity or is it -- or is it a
6 -- I don't know. The answer is no.

7 Q. Okay. Could you scroll with me,
8 please, to paragraph 179. It's on the page
9 marked 44 of 80.

10 MS. PRITZKER: Was that 179?

11 MR. MACH: It is, counsel.

12 A. 179. "Through its
13 anticompetitive restrictions."

14 I'm there.

15 Q. Do you see it says:

16 "Through its anticompetitive
17 restrictions, Google provides developers
18 with no choice but to use Google Play and
19 Google Play Billing for all in-app
20 transactions."

21 Do you see that, sir?

22 A. Yes.

23 Q. And what's your understanding
24 for the basis of the originations in
25 paragraph 179?

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER

2 MS. PRITZKER: Objection as to
3 form.

4 A. That it -- that it's placing
5 restrictions on developers, that Google is
6 placing restrictions on developers that are
7 anticompetitive.

8 Q. Shifting gears a little bit,
9 were you asked by anyone to search for
10 documents for the purpose of producing them
11 in this litigation?

12 A. What was the question?

13 Q. Were you asked by anyone to
14 search for documents so that they could be
15 produced in this litigation?

16 A. I -- no, no one asked me to
17 search for documents.

18 Q. Some documents that I --

19 A. I --

20 Q. You go ahead.

21 A. I was asked to produce a list of
22 the apps that I had gotten off of the Play
23 Store.

24 Q. You have provided some
25 information and also some email in

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER
2 connection with this litigation.

3 Are you aware of that, sir?

4 A. Yes.

5 Q. Okay. And how did you identify
6 -- strike that.

7 How, if you know, were those
8 documents identified for production in this
9 case?

10 A. My understanding was that my
11 entire digital world was down -- was
12 accessed, and there was a search made for
13 items that you asked to be discovered.

14 Q. Okay. And did you conduct that
15 search?

16 A. No, I did not conduct that
17 search.

18 Q. Am I correct to assume counsel
19 conducted the search?

20 MS. PRITZKER: Objection as to
21 form.

22 A. That is my understanding. That
23 a firm hired by my counsel that does that
24 sort of thing did it.

25 Q. And do you know whether that

1 HIGHLY CONFIDENTIAL - DANIEL EGERTER

2 Q. So if you will look with me,
3 please -- I'm having a little bit of a
4 technical glitch here. Give me a moment.

5 If you look with me, please, at
6 the page that ends in 10, do you see where
7 the AllTrails Pro app is listed there?

8 A. Yes.

9 Q. And it looks like you paid 29.99
10 for the AllTrails Pro app through Google
11 Play.

12 Is that correct, sir?

13 A. Correct.

14 Q. And you made that purchase in
15 August of 2020; correct?

16 A. Correct.

17 Q. When you purchased the AllTrails
18 Pro app, do you remember whether you looked
19 to see whether that product was available
20 for a lower price outside of the app store?

21 A. I don't think I did.

22 Q. And what is the AllTrails Pro
23 app?

24 A. It's an app that you can use for
25 hiking, mountain biking, biking, running.

1 GOOGLE PLAY STORE ANTITRUST LITIGATION

2 1/20/2022 - DANIEL EGERTER

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, DANIEL EGERTER, do hereby declare
5 that I have read the foregoing transcript, I
6 have made any corrections, additions, or
7 changes I deemed necessary as noted on the
8 Errata to be appended hereto, and that the same
9 is a true, correct and complete transcript of
10 the testimony given by me.

11
12 _____
13 DANIEL EGERTER

Date

14 *If notary is required

15
16 SUBSCRIBED AND SWORN TO BEFORE ME THIS

17 _____ DAY OF _____, 20____.

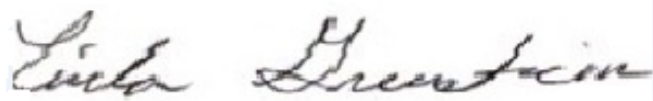
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19
20 _____
21 NOTARY PUBLIC

C E R T I F I C A T E

I, Linda J. Greenstein, Professional Shorthand Reporter and Notary Public in and for the State of New York, do hereby certify that, DANIEL EGERTER, the witness whose deposition is hereinbefore set forth, was duly sworn and that such deposition is a true record of the testimony given by the witness to the best of my skill and ability.

I further certify that I am neither related to or employed by any of the parties in or counsel to this action, nor am I financially interested in the outcome of this action.

IN WITNESS WHEREOF, I have hereunto set my hand this 21st day of January 2022.



Linda J. Greenstein

My commission expires: January 30, 2025

REDACTED VERSION

Exhibit A42 to C. Cramer Declaration

EXHIBIT 60

HIGHLY CONFIDENTIAL

Page 1

1 UNITED STATES DISTRICT COURT
2 FOR THE NORTHERN DISTRICT OF CALIFORNIA
3 SAN FRANCISCO DIVISION

4 *****

5 IN RE GOOGLE PLAY STORE Case No.
6 ANTITRUST LITIGATION 3:21-md-02981-JD

7 THIS DOCUMENT RELATES TO:

8 Epic Games, Inc. v. Google LLC,
9 et al.,
Case No: 3:20-cv-05671-JD

10 In re Google Play Consumer
11 Antitrust Litigation,
Case No: 3:20-cv-05761-JD

12 In re Google Play Developer
13 Litigation,
Case No: 3:20-cv-05792-JD

14 State of Utah, et al., v. Google
15 LLC, et al.,
Case No: 3:21-cv-05227-JD

16 *****

17 ** HIGHLY CONFIDENTIAL **
18 REMOTE VIDEO DEPOSITION BY VIRTUAL ZOOM OF
19 ZACHARY PALMER
20 Friday, January 21, 2022
21 10:00 a.m.

22
23
24 Reported by: Judith McGovern Williams

HIGHLY CONFIDENTIAL

Page 2

1 APPEARANCES (Appearing remotely):

2 MILBERG COLEMAN BRYSON PHILLIPS GROSSMAN

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12 and the witness

13
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22 and the witness

HIGHLY CONFIDENTIAL

Page 3

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10 Developer Antitrust Litigation and Pure Sweat
11 Basketball, Inc.

12
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19 and
20
21
22
23
24

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Page 4

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6 202-383-3565

7 kendallcollins@omm.com

8 On behalf of Google Defendants

9

10 OFFICE OF THE ATTORNEY GENERAL

11 Adam Miller, Esquire

12 Deputy Attorney General V

13 Antitrust Law Section

14 455 Golden Gate Avenue, Suite 11000

15 San Francisco, California 94102

16 415-510-4400

17 adam.miller@doj.ca.gov

18 On behalf of the State of California

19

20 Also present:

21 Amelia Schneider, Videographer

22 Paul Rafferty, Concierge

23

24

HIGHLY CONFIDENTIAL

Page 10

1 from Kaplan Fox also for the consumer plaintiffs
2 and the witness. Thank you.

3 MR. FRETT: Barry Frett from
4 Sperling & Slater on behalf of the developer
5 class.

6 MR. MILLER: Adam Miller on behalf of
7 plaintiff State of California.

8 THE WITNESS: Zack Palmer, witness.

9 THE VIDEOGRAPHER: Will the court
10 reporter please swear in the witness and we can
11 proceed.

12 - - -

13 ZACHARY PALMER, first having been
14 satisfactorily identified by the production of
15 his driver's license and duly sworn by the
16 Notary Public, testified under oath as follows
17 in answer to examination by MR. McINTYRE:

18 BY MR. McINTYRE:

19 Q. Good morning, sir. Can you please state
20 your name for the record?

21 A. Zachary Palmer.

22 Q. And what is your date of birth?

23 A. [REDACTED]

24 Q. [REDACTED]

HIGHLY CONFIDENTIAL

Page 18

1 Q. Have you spoken with any of them?

2 A. I have not.

3 Q. Have you had any communication with any of
4 the other plaintiffs through any means?

5 A. I have not.

6 Q. Have you read anyone else's deposition
7 transcripts from this case?

8 A. I have not.

9 Q. Now you understand, sir, that you are a
10 plaintiff in a lawsuit against Google? Correct?

11 A. Yes.

12 Q. Now in this lawsuit that you have brought
13 against Google, what are you accusing Google of
14 doing?

15 A. I am accusing them of overcharging and
16 being anticompetitive in their market.

17 Q. How are they anticompetitive?

18 A. By being the only option around and making
19 it very difficult for anyone else to try to have an
20 app store or do any of their own billing.

21 Q. What do you mean they are the only option
22 around?

23 MS. WEDGWORTH: Objection. If you
24 will just pause slightly so I can make

HIGHLY CONFIDENTIAL

Page 19

1 objections. Objection as to form.

2 A. I mean that there are in other usable app
3 stores for the Android.

4 BY MR. MCINTYRE:

5 Q. No other usable app stores?

6 MS. WEDGWORTH: Objection as to form.

7 A. Correct. That is what I stated.

8 BY MR. MCINTYRE:

9 Q. So how -- now this is your lawsuit that
10 you have brought against Google. What do you
11 allege that Google has done to --

12 MS. WEDGWORTH: Objection as to form.

13 I am sorry. Were you not through?

14 MR. MCINTYRE: Fine.

15 BY MR. MCINTYRE:

16 Q. What do you allege that Google has done?

17 MS. WEDGWORTH: Objection as to form.

18 A. I relied on my attorneys for the exact
19 verbiage that they used, because I am not
20 100 percent sure on the exact legalities. However,
21 I am alleging that they have made it impossible for
22 me to get anything through an outside developer or
23 an outside in-app store without going through them,
24 making it so I have to pay whatever they decide.

HIGHLY CONFIDENTIAL

Page 25

1 Q. Please let me know once this document
2 appears. You may have to refresh the platform.

3 MR. McINTYRE: For the record, I
4 believe that this document will be introduced as
5 Defendants' Exhibit Number 93.

6 (Consolidated Second Amended Class
7 Action Complaint marked Defendants'
8 Exhibit 93 for identification.)

9 BY MR. McINTYRE:

10 Q. Do you have that document in front of you,
11 Mr. Palmer?

12 A. I do not, I am still waiting for the page
13 to load. I apologize.

14 Q. No problem.

15 A. I am opening it now.

16 (Pause.)

17 A. Okay. It is opened.

18 Q. Have you seen this document before,
19 Mr. Palmer?

20 A. Yes.

21 Q. And what is this document?

22 A. This is one of the complaints, I believe
23 the most recent one.

24 Q. And this is the second amended complaint

HIGHLY CONFIDENTIAL

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1 filed by the consumer class? Correct?

2 A. It -- if you say second, I -- I'm not sure
3 of the exact number, if it is the second or the
4 third. It is not part of the title and I don't
5 remember the exact dates from when each amendment
6 was posted.

7 Q. On the very first page, do you see where
8 it says "Consolidated Second Amended Class Action
9 Complaint"?

10 A. Oh, yes. I do apologize for missing the
11 word "second" before.

12 Q. No problem. And do you see at the header
13 it says that this document was filed on
14 December 20, 2021?

15 A. Yes, sir.

16 Q. Now you have seen this document before?
17 Correct?

18 A. Yes.

19 Q. Is this one of the documents you reviewed
20 in preparation for your deposition?

21 A. Yes.

22 Q. And you understand that you are one of the
23 plaintiffs that filed this complaint against
24 Google? Correct?

HIGHLY CONFIDENTIAL

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1 A. Yes.

2 Q. Now did you review this document before it
3 was filed in December?

4 A. Yes.

5 Q. You reviewed the allegations in this
6 document before it was filed?

7 A. Yes.

8 Q. Did you provide any edits or comments to
9 your attorneys on the allegations before this
10 document was filed?

11 A. Not that I remember.

12 Q. Okay. Now I would like you to turn to
13 page 10 of this document. If you are looking in
14 the header of the document, you will see that there
15 are page numbers.

16 A. So page 10 of 80?

17 Q. Yes.

18 A. Okay.

19 Q. Now please look at the bottom part of that
20 page, do you see paragraph 25?

21 A. I do.

22 Q. And this paragraph describes yourself? Is
23 that correct?

24 A. Correct.

HIGHLY CONFIDENTIAL

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1 anything has been.

2 BY MR. McINTYRE:

3 Q. Do you own a Samsung device? Correct?

4 A. Yes.

5 Q. And in fact you have owned a number of
6 Samsung devices; right?

7 A. Yes.

8 Q. What Samsung phone do you currently use?

9 A. I currently use a Note 20 Ultra.

10 Q. Samsung is an OEM? Right?

11 A. I believe so.

12 Q. You testified a moment ago that Samsung
13 phones come preloaded with the Samsung Galaxy
14 Store? Correct?

15 A. Yes.

16 Q. When you take a new Samsung phone out of
17 the box and turn it on, the Samsung Galaxy Store is
18 right there on the home screen, isn't it?

19 A. It is not. Not that I remember.

20 Q. Not to your recollection?

21 A. No.

22 Q. When you took your current phone -- can
23 you remind me what kind of phone you are currently
24 using?

HIGHLY CONFIDENTIAL

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1 A. I have not. No.

2 Q. Have you made any in-app purchases for
3 reasons related to your job?

4 A. I have not.

5 Q. Have you purchased any subscriptions for
6 reasons related to your job?

7 A. I have not.

8 Q. Now aside from the jobs that we just
9 discussed, have you had any other sources of income
10 over the past five years?

11 A. No.

12 Q. Mr. Palmer, were you at any point asked by
13 anyone to search for documents for the purpose of
14 producing them in discovery in this litigation?

15 A. I believe my lawyers did some things at
16 one point.

17 Q. Now without going into the substance of
18 any communications with your lawyers, what have you
19 done to search for or collect documents in
20 connection with this litigation?

21 A. I believe an IT firm went through and
22 acquired what they needed.

23 Q. What device did they use?

24 MR. McINTYRE: I am sorry. Strike

HIGHLY CONFIDENTIAL

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1 refreshing. I believe I have it open now.

2 Q. Okay. If you would like, Mr. Palmer, you
3 can take a minute to review this document.

4 A. Thank you. Okay.

5 Q. Do you recognize this document,
6 Mr. Palmer?

7 A. I believe so. Yes.

8 Q. Now looking at the first page, the title
9 of this document is "Defendants First Set of
10 Requests of Production of Documents and for
11 Inspection to Consumer Plaintiffs." Do you see
12 that?

13 A. Yes.

14 Q. And so you have seen this document before?
15 Correct?

16 A. Yes.

17 Q. Do you have an understanding as to what
18 this document is?

19 A. I believe so.

20 Q. Well, what is your understanding of this
21 document?

22 A. It is a document of which states that
23 Google is requesting the plaintiffs to show in
24 terms of various documents and such.

HIGHLY CONFIDENTIAL

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1 Q. Have you undertaken any efforts yourself
2 to collect or search for the documents requested
3 here?

4 A. Only that which has been asked of me by my
5 attorneys.

6 Q. A few minutes ago, you mentioned that an
7 IT firm had access to a couple of your devices and
8 your email account. Right?

9 A. Yes.

10 Q. And you mentioned that you provided some
11 other documents to your attorneys, such as screen
12 shots and receipts. Correct?

13 A. Yes.

14 Q. Now other than what we have just
15 described, have you done anything else to search
16 for the documents requested in this exhibit?

17 A. I do not believe so.

18 Q. Mr. Palmer, are you aware that your
19 attorneys produced more of your documents just last
20 night?

21 A. I believe so. Yes.

22 Q. And it was about 100 pages of documents.
23 Is that consistent with your understanding?

24 A. I'm not sure how many pages it came out

HIGHLY CONFIDENTIAL

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1 Q. I have got it. So you buy the Google
2 through Google Play, and then you read it through
3 the Google Play Books app?

4 A. Correct.

5 Q. Do you download free apps from Google
6 Play?

7 A. I have. Yes.

8 Q. That includes apps where you don't have to
9 pay anything ever to use them? Right?

10 MS. WEDGWORTH: Objection as to form.

11 A. Correct.

12 BY MR. MCINTYRE:

13 Q. Have you ever paid to download an app from
14 Google Play app?

15 A. Not that I'm aware of, but I'm not sure.

16 Q. And as you described earlier, in some
17 cases you have downloaded free-to-download apps
18 that then had in-app purchases or subscriptions,
19 right?

20 MS. WEDGWORTH: Objection as to form.

21 A. Correct.

22 BY MR. MCINTYRE:

23 Q. What was your answer?

24 A. Correct.

HIGHLY CONFIDENTIAL

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CERTIFICATE

Commonwealth of Massachusetts

Plymouth, ss.

I, Judith McGovern Williams, a Notary
Public in and for the Commonwealth of
Massachusetts, do hereby certify:

That ZACHARY PALMER, the witness whose
deposition is hereinbefore set forth, was duly
sworn by me and that such deposition is a true
record of the testimony given by the said witness.

IN WITNESS WHEREOF, I have hereunto set my
hand this 24th day of January, 2022.



Judith McGovern Williams

Registered Professional Reporter

Certified Realtime Reporter

Certified Shorthand Reporter No. 130993

My Commission expires:

April 19, 2024

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In Re Google Play Store Antitrust Litigation

1/21/2022 - Zachary Palmer (#4973566)

ACKNOWLEDGEMENT OF DEPONENT

I, Zachary Palmer, do hereby declare that I have read the foregoing transcript, I have made any corrections, additions, or changes I deemed necessary as noted above to be appended hereto, and that the same is a true, correct and complete transcript of the testimony given by me.

Zachary Palmer

Date

*If notary is required

SUBSCRIBED AND SWORN TO BEFORE ME THIS

_____ DAY OF _____, 20____.

NOTARY PUBLIC

REDACTED VERSION

Exhibit A43 to C. Cramer Declaration

EXHIBIT 61

1
2 UNITED STATES DISTRICT COURT
3 FOR THE NORTHERN DISTRICT OF CALIFORNIA
4 SAN FRANCISCO DIVISION
5 Case No. 3:21-md-02981-JD

6
7 -----x
8 IN RE GOOGLE PLAY STORE
9 ANTITRUST LITIGATION

10
11 THIS DOCUMENT RELATES TO:
12 Epic Games Inc. V. Google LLC, et al.,
13 Case No: 3:20-cv-05671-JD

14
15 In re Google Play Consumer
16 Antitrust Litigation,
17 Case No: 3:20-cv-05761-JD

18
19 In re Google Play Developer
20 Antitrust Litigation,
21 Case No: 3:20-cv-05792-JD

22
23 State of Utah, et al., v.
24 Google LLC, et al.,
25 Case No: 3:21-cv-05227-JD

-----x

26
27 **HIGHLY CONFIDENTIAL
28 UNDER PROTECTIVE ORDER**

29
30 Remote Videotaped Deposition by
31 Virtual Zoom OF MATTHEW ATKINSON, taken
32 on Friday, March 18, 2022 at 10:08 a.m.
33 Eastern Standard Time, before Dawn
34 Matera, a Certified Shorthand Reporter
35 and Notary Public for the State of New
36 York.

1
2 REMOTE APPEARANCES:
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21 Google Play Consumer Antitrust
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9
10 CALIFORNIA DEPARTMENT OF JUSTICE

11 OFFICE OF THE ATTORNEY GENERAL

455 Golden Gate Avenue #11000

12 San Francisco, California 94102

13 By: BRIAN WANG, ESQ.

Deputy Attorney General III,

14 Antitrust Section

15
16 Also present:

17 MARCO SOZIO, Videographer

18 DYLAN BRASCH, Concierge

19 ~oOo~
20
21
22
23
24
25

1 MATT ATKINSON - Highly Confidential
2 Sperling & Slater on behalf of the
3 developer class.

4 MR. WANG: Brian Wang,
5 California Department of Justice on
6 behalf of the State of California.

7 M A T T A T K I N S O N, having been
8 first duly sworn by Dawn Matera, a Notary
9 Public, was examined and testified as
10 follows:

11 EXAMINATION BY MR. SIDNEY:

12 Q. Good morning, Mr. Atkinson.

13 A. Good morning.

14 Q. Just to start us off, could you
15 state your full name for the record.

16 A. Matthew John Atkinson.

17 Q. Thank you. And what is your
18 current residential address?

19 A. [REDACTED]
20 [REDACTED]

21 Q. Thank you. And is that where
22 you're sitting today for the deposition?

23 A. Yes.

24 Q. Is anyone else there with you
25 or are you alone in the room?

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2 to Defendants' Preservation
3 Interrogatories, was previously
4 marked.]

5 [DX Exhibit 97, Consumer Class
6 Plaintiffs' Objections and Responses
7 to Defendants' First Set of
8 Interrogatories, was previously
9 marked.]

10 Q. While he's doing that,
11 Mr. Atkinson, could you just describe for
12 me your claims in this lawsuit against
13 Google?

14 A. Sure. My claims would be very
15 simple. We're alleging, which is also
16 listed in the complaint, that Google does
17 seem to have some sort of monopoly, and
18 as well as possible overcharge of apps.

19 Q. And when you say some sort of
20 monopoly, what do you mean by that?

21 A. Basically there is not any
22 competition besides Google Play Store.

23 Q. Any competition for what?

24 MS. WEDGWORTH: Objection as to
25 form.

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2 A. Phone applications.

3 Q. I just want to make sure I got
4 the answer, you said phone applications,
5 right?

6 A. Correct.

7 Q. Okay. So when you refer to
8 competition for phone applications, are
9 you referring to the development of
10 applications or distribution or something
11 else?

12 MS. WEDGWORTH: Objection as to
13 form.

14 A. Distribution through various
15 channels such as other app stores.

16 Q. Okay. And then you also
17 mentioned the possible overcharge. What
18 were you referring to there?

19 A. Through speaking with my
20 attorneys and reading the complaint, it
21 does seem that there may be some sort of
22 overcharge that Google is taking from us
23 as well as developers.

24 Q. And when you say "us," are you
25 referring to the consumer class?

1 MATT ATKINSON - Highly Confidential

2 A. Correct.

3 Q. Okay. What about you,
4 personally, do you believe that Google is
5 overcharging you?

6 A. I do, yes.

7 Q. Okay. In what respect do you
8 believe that Google is overcharging you?

9 A. I'm not sure what you mean.

10 Q. So you believe that you've been
11 overcharged by Google. My question is
12 what have you been overcharged? And that
13 can be a dollar amount or with respect to
14 a particular kind of transaction.

15 MS. WEDGWORTH: Objection as to
16 form.

17 A. Processing of applications, for
18 example pricing of paid apps and paid
19 digital content.

20 Q. So your claim is when you
21 purchase a paid app or digital content
22 through Google, you believe that Google
23 is overcharging?

24 A. Correct.

25 Q. Who sets the price for the

1 MATT ATKINSON - Highly Confidential
2 content that you purchase?

3 MS. WEDGWORTH: Object as to
4 form.

5 A. I believe it would be both a
6 cooperation between Google and the
7 developer.

8 Q. What do you mean by a
9 cooperation between Google and the
10 developer?

11 A. My understanding, and again, I
12 am working with my attorneys and their
13 experts, similar to any other transaction
14 work, you have a supplier and you have a
15 manufacturer for distribution. The
16 manufacturer has, let's say a wholesale
17 cost. Then the retailer or the
18 distributor would tack on their fees.

19 Q. And in that example, are you
20 referring to the app developer as
21 manufacturer and Google as the retailer
22 or the distributor?

23 MS. WEDGWORTH: Objection as to
24 form.

25 A. Correct.

1 MATT ATKINSON - Highly Confidential

2 Q. In the marked exhibits folder,
3 you should have DX 93. Could you please
4 pull that up. Let me know when you have
5 it.

6 A. Yes, I do have it.

7 Q. Well, this is the consolidated
8 second amended class action complaint.
9 Do you see that on the first page?

10 A. I do.

11 Q. And this is one of the
12 documents that refreshed your
13 recollection as part of preparing for
14 today's deposition, right?

15 A. Correct.

16 Q. What about this refreshed your
17 recollection?

18 A. Reading over the complaint, as
19 far as what we're looking for in the
20 case, as well as what's being alleged.

21 Q. Can you point me to any
22 particular part of this document that
23 refreshed your recollection?

24 A. Just looking for page numbers
25 here.

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2 Q. The page numbers in blue at the
3 top is probably the easiest to refer to.

4 A. Okay.

5 MS. WEDGWORTH: And

6 Mr. Atkinson, I will remind you that
7 any communications with your attorneys
8 you cannot disclose. If you can
9 answer the question without revealing
10 communications with your attorneys,
11 you may do so.

12 A. The whole document refreshed
13 everything.

14 Q. And did you read the document
15 from cover to cover and that's what
16 refreshed your recollection?

17 A. I did go through it, go through
18 it and kind of skimmed over it, yes.

19 Q. Did you review this document
20 before it was filed with the court?

21 A. I believe so, yes.

22 Q. And before it was filed, did
23 you make any edits or suggest any
24 changes?

25 A. Not that I can recall.

1 MATT ATKINSON - Highly Confidential
2 form.

3 A. Again, I am not an economy
4 expert, but I don't believe there would
5 be very much retention there, as long as
6 they felt they were getting sufficient
7 profit.

8 Q. Okay. You can set that
9 document aside. Were you asked by anyone
10 to search for documents for the purpose
11 of producing documents in this
12 litigation?

13 A. Yes.

14 Q. And how did you go about
15 identifying the documents that needed to
16 be produced?

17 A. I spoke with my attorneys with
18 regards to what was needed.

19 Q. And then did you go look for
20 documents yourself?

21 A. Yes.

22 Q. And did you search your
23 electronic devices and online accounts?

24 A. No. I provided that
25 information to my attorneys so they can

1 MATT ATKINSON - Highly Confidential
2 do that.

3 Q. Okay. They conducted the
4 search for you?

5 A. Correct. They would have
6 conducted e-mail searches for me, yes.

7 Q. Okay. Did you review any paper
8 files?

9 A. What do you mean by paper
10 files?

11 Q. Like physical hard copy
12 documents that you have that couldn't be
13 searched electronically?

14 A. Not to my recollection.

15 Q. Are you aware of any hard copy
16 documents that you have that relate in
17 any way to this litigation?

18 A. Not that I can recall.

19 Q. Okay. What about searching
20 electronic files on computers other than
21 e-mail?

22 A. I don't recall if that was done
23 or not.

24 Q. Do you save documents to the
25 hard drive or desktop of any computers?

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2 A. Do I?

3 Q. Yes.

4 A. Yes.

5 Q. Are any of those documents
6 related to Google Play or your purchase
7 of mobile devices?

8 A. I don't believe so. If I
9 remember correctly, all of the receipts
10 would be sent electronically to my Gmail
11 account.

12 Q. Okay. Have you sent any
13 e-mails to anybody related to this
14 lawsuit, other than your attorneys?

15 A. Not to my knowledge.

16 Q. Did you provide information to
17 your attorneys about your Google account,
18 e-mail addresses?

19 A. Yes.

20 Q. And did you give them all of
21 the Google accounts that you use?

22 A. Yes, I gave them the ones that
23 I recall using, yes.

24 Q. Have you deleted any documents
25 that are related to Google Play or your

1 MATT ATKINSON - Highly Confidential
2 mobile devices?

3 A. Not knowingly. I also did my
4 best to prevent an auto deletion as well.

5 Q. Okay. If you could look at the
6 document that's been marked as DX 95.
7 Let me know when you have that up.

8 A. I have it.

9 Q. Just for the record, this is a
10 document entitled Consumer Class
11 Plaintiffs' Objections and Responses to
12 Defendant's Preservation Interrogatories.
13 Have you seen this document before?

14 A. Yes.

15 Q. Do you understand this to be
16 the responses from you and the other
17 consumer class representatives to
18 Google's questions about document
19 preservation?

20 A. That is correct.

21 Q. Did your attorneys at some
22 point instruct you to preserve documents
23 relating to this lawsuit?

24 A. I believe that may be a
25 communication between me and my attorney.

1 MATT ATKINSON - Highly Confidential

2 A. One moment, it's loading.

3 Yes, I do.

4 Q. And this says "Identify by make
5 and model all electronic devices,
6 including without limitation handheld
7 devices, consoles, televisions, personal
8 computers or tablets on which you have
9 downloaded apps or made in-app
10 purchases." Do you see that?

11 A. Yes, I do.

12 Q. And the response that your
13 counsel provided on your behalf is on
14 page 6 under Response of Class Plaintiff
15 Matthew Atkinson. Do you see that
16 section?

17 A. Yes.

18 Q. And listed here is the Samsung
19 Galaxy J7 phone. That's the same Galaxy
20 J7 that we talked about a little bit ago,
21 right?

22 A. Yes.

23 Q. And then there is a Motorola
24 G Stylus phone which you have currently,
25 right?

1 MATT ATKINSON - Highly Confidential

2 A. Yes.

3 Q. And it sounds like you first
4 got the Galaxy J7 phone around 2019 or
5 2020; is that right?

6 A. Yes.

7 Q. And there is no phone listed
8 here that you had between 2015 and 2019,
9 right?

10 A. Correct.

11 Q. So would you agree as to the
12 phones that you had between 2015 and
13 2019, this response is not fully
14 accurate?

15 MS. WEDGWORTH: Objection as to
16 form.

17 A. It is accurate to the knowledge
18 that I had at that time.

19 Q. Okay. But you are aware that
20 you've had other smartphones before 2019
21 that are not listed in this response,
22 right?

23 A. Yes.

24 Q. And you just, sitting here
25 today, cannot recall the make and model

1 MATT ATKINSON - Highly Confidential
2 of those phones, right?

3 A. That is correct.

4 Q. Did you undertake any steps to
5 search for information about the make and
6 model of the phones that you had between
7 2015 and 2019?

8 A. Yes.

9 Q. And how did you search for
10 that?

11 A. Because I had the same carrier,
12 I did a search on my carrier's website to
13 see if they had a history of prior
14 activated devices, but I do not recall
15 seeing any there.

16 Q. Did you search your e-mail as
17 well?

18 A. I don't recall.

19 Q. Okay. The third line of this
20 response says Sony PlayStation 3, do you
21 see that?

22 A. Yes.

23 Q. When did you first get the Sony
24 PlayStation 3?

25 A. If I had to take a rough guess,

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2 (DX Exhibit 250, Document Bates
3 stamped GOOG-Play-007376202, was so
4 marked for identification, as of this
5 date.)

6 A. Okay.

7 MS. WEDGWORTH: Nick, do you
8 know which Google account this is
9 from?

10 MR. SIDNEY: This is from the
11 Revive Health info Google account and
12 the Bates number of the document is
13 GOOG-Play-007376202.

14 Q. Let me know when you see that,
15 Mr. Atkinson.

16 A. DX 250, tab 10?

17 Q. That's correct.

18 A. Yes, I do see the single page.

19 Q. If you zoom in, row 10 there
20 lists KeepSafe as well; do you see that?

21 A. Yes.

22 Q. And to the right of the
23 KeepSafe name in column G, it says
24 149.99, do you see that?

25 A. I am trying to scroll over

1 MATT ATKINSON - Highly Confidential
2 here. I have to Zoom out to get farther
3 over there.

4 Yes, I do see it now.

5 Q. Okay. And was this a lifetime
6 subscription to KeepSafe that you
7 purchased?

8 A. It appears to be that it was a
9 one-time payment to make it available for
10 life, yes.

11 Q. And you purchased this in April
12 2017, right?

13 A. It appears to be, yes.

14 Q. Do you continue to use KeepSafe
15 today?

16 A. On occasion. I believe it is
17 currently installed, but I don't
18 regularly add anything to it anymore.

19 Q. Okay. But at the time you
20 purchased this, a lifetime subscription
21 to KeepSafe was important to you for
22 maintaining the security and backup of
23 your photos, right?

24 MS. WEDGWORTH: Objection as to
25 form.

1 MATT ATKINSON - Highly Confidential
2 of this exhibit.

3 A. Would that be 253?

4 Q. Correct.

5 A. Okay.

6 Q. And you mentioned earlier that
7 you frequently purchase in-app purchases
8 for games that you've downloaded from
9 Google Play, right?

10 A. Yes.

11 Q. And do you ever purchase apps
12 where the app itself is paid and you need
13 to purchase the app in order to download
14 it at all?

15 A. I believe I have purchased a
16 few, yes. I can't remember exactly what
17 they were. But there probably have been
18 a few where I paid the purchase of the
19 app.

20 Q. Would it be fair to say,
21 though, that a vast majority of your
22 purchases at Google Play are in-app
23 purchases, right?

24 A. Yes.

25 Q. So let's just look at the first

CERTIFICATION

I, DAWN MATERA, a Notary Public
for and within the State of New York, do
hereby certify:

That the witness whose testimony
as herein set forth, was duly sworn by
me; and that the within transcript is a
true record of the testimony given by
said witness.

I further certify that I am not
related to any of the parties to this
action by blood or marriage, and that I
am in no way interested in the outcome of
this matter.

IN WITNESS WHEREOF, I have
hereunto set my hand this 20th day of
March, 2022.



DAWN MATERA

1 In Re Google Play Store Antitrust Litigation

2 3/18/2022 - Matthew Atkinson (#5107348)

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, Matthew Atkinson, do hereby declare that I
5 have read the foregoing transcript, I have made any
6 corrections, additions, or changes I deemed necessary as
7 noted above to be appended hereto, and that the same is
8 a true, correct and complete transcript of the testimony
9 given by me.

10
11 _____
12 Matthew Atkinson

13 *If notary is required

14 SUBSCRIBED AND SWORN TO BEFORE ME THIS

15 _____ DAY OF _____, 20____.

16
17
18 _____
19 NOTARY PUBLIC
20
21
22
23
24
25

REDACTED VERSION

Exhibit A44 to C. Cramer Declaration

EXHIBIT 63

1
2 UNITED STATES DISTRICT COURT
3 FOR THE NORTHERN DISTRICT OF CALIFORNIA
4 SAN FRANCISCO DIVISION

-----X
5 IN RE GOOGLE PLAY STORE ANTITRUST
6 LITIGATION

7 Case No. 3:21-md-02981-JD

8 THIS DOCUMENT RELATES TO:

9 Epic Games Inc. v. Google LLC, et al.
10 Case No.: 3:20-cv-05671-JD

11 In re Google Play Consumer Antitrust
12 Litigation
13 Case No.: 3:20-cv-05761-JD

14 In re Google Play Developer Antitrust
15 Litigation
16 Case No.: 3:20-cv-05792-JD

17 State of Utah, et al. v. Google LLC, et al.
18 Case No.: 3:21-cv-05227-JD

-----X

19 * * * HIGHLY CONFIDENTIAL * * *
20 REMOTE VIDEOTAPED DEPOSITION OF
21 SERINA MOGLIA
22 Thursday, February 10, 2022

23 Reported by:
24 Judith Castore, CLR
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February 10, 2022

10:15 a.m.

HIGHLY CONFIDENTIAL VIDEOTAPED REMOTE
DEPOSITION of SERINA MOGLIA, held at the
above-mentioned date and time, before Judith
Castore, a Certified Livenote Reporter and Notary
Public of the State of New York.

A P P E A R A N C E S
(ALL PARTIES APPEARED VIA ZOOM VIDEOCONFERENCE)

ON BEHALF OF: Consumer Class
Plaintiffs in Google Play Consumer Antitrust
Litigation

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Plaintiffs in Google Play Consumer Antitrust
Litigation

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1 HIGHLY CONFIDENTIAL - MOGLIA

2 S-E-R-I-N-A M-O-G-L-I-A,

3 Having been duly sworn by a Notary Public
4 within and for the State of New York, stated an
5 address as [REDACTED]

6 [REDACTED], was examined and testified as follows:

7 EXAMINATION BY MS. GONZALEZ:

8 Q Thank you.

9 So before we get started with
10 the substance, I just wanted to go over
11 a couple of preliminary matters today.
12 The first is that, because we have a
13 court reporter who will be taking down
14 everything we say today, we need to try
15 not to talk over each other. I know
16 that can be a little challenging if
17 there is Zoom delays, but I will do my
18 best, you know, not to jump in while
19 you are talking. And I would ask that
20 you try to do the same.

21 Similarly, the court reporter
22 needs audible responses. So, you know,
23 no head nodding or head shaking so the
24 court reporter can get down your
25 answers.

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2 that should say DX93.

3 A Yes, I got it.

4 Q Okay.

5 (Consolidated Second Amended
6 Class Action Complaint, was marked
7 Defendants' Exhibit 93, for
8 identification, as of this date.)

9 Q Okay. So this is a long
10 document. You're welcome to scroll
11 through it, but, you know, I'm not
12 expecting you to read it word for word
13 right now. I will direct you to
14 specific paragraphs. But you can take
15 a minute to scroll through.

16 A Okay.

17 Q Have you seen this document
18 before?

19 A Yes, I have.

20 Q Do you know what the document
21 is?

22 A It's in regards to this
23 lawsuit.

24 Q Do you understand it to be
25 the complaint or a complaint filed in

1 HIGHLY CONFIDENTIAL - MOGLIA

2 this lawsuit?

3 A Yes.

4 Q Have you read the document
5 before?

6 A Yes, I have looked over it.

7 Q Did you review it before it
8 was filed with the court?

9 MS. HERKENHOFF: Object to
10 form.

11 A Yes.

12 Q Did you make any edits to the
13 document when you reviewed it?

14 MS. HERKENHOFF: Object to
15 form.

16 I will let you answer. To
17 the extent any edits were
18 communicated to counsel, that's
19 privileged communication. But if
20 you can answer otherwise, I will
21 permit you to do so.

22 A I rely on my counsel to do
23 that.

24 Q So is that a, no, you didn't
25 make any edits?

1 HIGHLY CONFIDENTIAL - MOGLIA

2 to the present.

3 So is it accurate that your
4 first purchase from the Google Play
5 Store was August 16, 2016?

6 MS. HERKENHOFF: Object to
7 form.

8 Q You can answer.

9 A To the best of my knowledge.

10 Q Okay. And the last part of
11 the sentence says that you paid Google
12 directly for those purchases.

13 To the best of your knowledge
14 is that accurate?

15 A Yes.

16 Q If you could scroll up to
17 paragraph 5 which is on page 5 of 80.

18 Yep, right there.

19 Okay. So paragraph 5 says:

20 Google has unlawfully maintained a
21 monopoly over the market for
22 distributing mobile apps to users of
23 Android mobile devices (hereinafter,
24 the Android Application Distribution
25 Market), as well as a monopoly in the

1 HIGHLY CONFIDENTIAL - MOGLIA
2 aftermarket for distribution of and
3 associated payment systems for digital
4 accessories or enhancements to those
5 applications (hereinafter, the In-App
6 Aftermarket).

7 In your view, what has Google
8 done to unlawfully maintain a monopoly
9 over the market for distributing mobile
10 apps to users of Android mobile
11 devices?

12 MS. HERKENHOFF: Object to
13 form.

14 A Well, when you go into these
15 apps, it's mostly all Google-based.

16 Q I'm sorry. What do you mean
17 by -- that "it's mostly all
18 Google-based"?

19 A So when you go open your
20 phone and you go into your phone, it's,
21 like, the Google apps are already --
22 like, the Play Store already downloaded
23 into your phone.

24 Q And are there any other apps
25 that are -- any other Google apps that

1 HIGHLY CONFIDENTIAL - MOGLIA

2 are already on your phone?

3 MS. HERKENHOFF: Object to
4 form.

5 A The phone does come with a
6 lot of Google apps on it.

7 Q And is it your view that all
8 of those Google apps together is what
9 Google is using to allegedly maintain
10 this unlawful monopoly?

11 MS. HERKENHOFF: Object to
12 form.

13 A Yes.

14 Q Going back to that
15 paragraph 5, the second part of the
16 paragraph.

17 In your view, what has Google
18 done to maintain a monopoly in the
19 aftermarket for distribution of and
20 associated payment systems for digital
21 accessories or enhancements to those
22 applications?

23 MS. HERKENHOFF: Object to
24 form.

25 A Can you rephrase it in a

1 HIGHLY CONFIDENTIAL - MOGLIA

2 different way, please?

3 Q Sure.

4 So the first part that I just
5 asked you a couple of minutes ago was
6 about an allegation related to
7 distributing mobile apps for Android
8 mobile devices. As I understand it,
9 this second part of paragraph 5 relates
10 to allegations about what Google has
11 done in the aftermarket or in sort of
12 lay terms, like Google Billing and
13 Google Payment through the apps
14 distributed on Android devices.

15 Does that help?

16 MS. HERKENHOFF: Object to
17 form.

18 A Not really.

19 Q Okay. Are you aware of
20 allegations in your complaint related
21 to Google Play Billing?

22 MS. HERKENHOFF: Object to
23 form.

24 A Yes.

25 Q And, in your words, what are

1 HIGHLY CONFIDENTIAL - MOGLIA

2 those allegations?

3 MS. HERKENHOFF: Object to
4 form.

5 A I don't know how to answer
6 that.

7 Q Okay. Let's scroll down the
8 page a bit to paragraph 7.

9 A On that same page, page 5?

10 Q Yes. Yes.

11 A Okay. Sorry. I moved it too
12 much.

13 Q Did you find paragraph 7?

14 A I did.

15 Q Okay. Paragraph 7 says:

16 Google requires OEMs not only to
17 preinstall the Google Play Store on
18 their mobile devices as a condition for
19 licensing Google's Android OS with its
20 accompanying GM suite, but also to
21 locate the Google Play Store on the
22 homepage of each mobile device. These
23 restrictions in Google's OEM agreements
24 interfere with an OEM's ability to make
25 other third-party app stores or apps

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2 easily accessible on their devices and
3 practically block competitive stores
4 from obtaining preferential placement,
5 effectively foreclosing competing app
6 stores - and even single apps - from
7 the most effective and efficient
8 distribution channel.

9 Do you see that?

10 A I see the number 7 on page --
11 yeah. So, yes, page 5, number 7. I
12 see where you were semi reading. Yes.

13 Q Okay. Just I read that
14 paragraph out loud.

15 A Yes.

16 Q Okay. When I said -- or when
17 it says, in that paragraph, OEM, do you
18 understand that to mean original
19 equipment manufacturer?

20 MS. HERKENHOFF: Object to
21 form.

22 A Yes.

23 Q And do you understand that
24 Samsung is an OEM?

25 MS. HERKENHOFF: Object to

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2 form.

3 A Yes.

4 Q This paragraph is saying that
5 Google requires OEMs, such as Samsung,
6 to place the Google Play Store on the
7 home screen of their devices; is that
8 correct?

9 MS. HERKENHOFF: Object to
10 form.

11 A Correct.

12 Q And we'll talk about this
13 more later, but you have owned several
14 Samsung devices, right?

15 A Yes, I have.

16 Q And those Samsung devices
17 came preloaded with apps, correct?

18 MS. HERKENHOFF: Object to
19 form.

20 A Correct.

21 Q And when you open up a new
22 Samsung device, do you see the Samsung
23 Galaxy Store on the home screen?

24 MS. HERKENHOFF: Object to
25 form.

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2 for this litigation.

3 A I produced my own.

4 Q You mean you gave your own
5 documents to your counsel; is that what
6 you're saying?

7 A Yes.

8 Q Okay. I'm going to pull up
9 another exhibit. It's a document that
10 had previously been marked as
11 Defendants' Exhibit 94.

12 (Defendants' First Set of
13 Requests for Production of
14 Documents and for Inspection to
15 Consumer Plaintiffs, was marked
16 Defendants' Exhibit 94, for
17 identification, as of this date.)

18 A Again, should I refresh it or
19 should I wait a few minutes to see it
20 if it refreshes?

21 Q I think you can probably
22 refresh.

23 A Okay.

24 Q I'm not 100 percent sure what
25 it looks like on your end, but...

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2 A Okay. I have three now, so
3 is it one that starts with the E?

4 Q Yes, I believe so. And it
5 should have a yellow sticker on it that
6 says Exhibit DX0094.

7 A Yes, I have it.

8 Q Okay. Just take a minute to
9 scroll through it.

10 A Okay.

11 Q Have you seen this document
12 before?

13 A I believe so, yes.

14 Q Do you recall reading the
15 document?

16 A I recall looking it over,
17 yes.

18 Q Okay. If you scroll down
19 to -- if you can scroll down to -- I
20 guess it's page 7. Yep. There is a
21 list of requests for productions.

22 A So would it say page 7 at the
23 bottom of the page?

24 Q Oh, yes.

25 A Yes.

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2 Okay. I'm on the page.

3 Q Okay. You see where it says
4 "Request for Production" and then there
5 is a list of requests going through
6 number 46?

7 A Well, then 46 would go onto
8 the next page?

9 Q Yeah.

10 A Okay. Yes.

11 Q Okay. How did you go about
12 searching for documents responsive to
13 this request -- or these requests?

14 A I had a vendor --
15 (Clarification by the
16 reporter.)

17 A I had a vendor debug my phone
18 and look at the e-mails.

19 Q Okay. The first part of that
20 answer, that you had a vendor debug
21 your phone, what do you mean by that?

22 MS. HERKENHOFF: And I'm
23 going to interject that the vendor
24 was retained by counsel and is
25 essentially a consulting agent of

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2 counsel.

3 So I would instruct you only
4 to the answer as to the facts of
5 what was done. Please do not
6 communicate as to any
7 communications that we had
8 concerning that appointment or
9 that vendor.

10 Can you restate the question?

11 MS. GONZALEZ: Sure.

12 Q I'm just trying to understand
13 what you mean by a vendor debugged your
14 phone.

15 A With my counsel, they, I
16 guess, scanned my phone.

17 Q Okay. And when you said that
18 you reviewed e-mails, was that you
19 reviewing your e-mails or was the
20 vendor involved in that as well?

21 MS. HERKENHOFF: Object to
22 form.

23 A The vendor was involved in
24 that.

25 Q Did you -- other than

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2 e-mails, did you search for any other
3 electronic files?

4 A No.

5 Q Did you search through any
6 paper files?

7 A No.

8 Q Did you search any computers?

9 MS. HERKENHOFF: Object to
10 form.

11 A Did who search any computers?

12 Q Well, I guess let me clarify.

13 Did the vendor only take
14 information from your current mobile
15 device?

16 MS. HERKENHOFF: Object to
17 form.

18 A Yes.

19 Q Okay. So does that mean that
20 the vendor did not debug or scan any
21 prior mobile devices that you may have?

22 MS. HERKENHOFF: Object to
23 form.

24 A No.

25 Q And what about any computers?

1 HIGHLY CONFIDENTIAL - MOGLIA

2 Did the vendor debug or scan any
3 computers?

4 MS. HERKENHOFF: I am going
5 to object to form. And also, to
6 the extent, again, her answer
7 reveals any privileged
8 communications, I would caution
9 her not to state that. So I am
10 not sure that she can answer your
11 question.

12 But if you can answer
13 independent of privileged
14 communications, you can answer.
15 Otherwise, I instruct you not to
16 answer.

17 A I'm going to follow my
18 counsel.

19 Q Okay. Basically all I'm
20 looking for is a yes or no. Did the
21 vendor scan other devices? I'm not
22 asking for what you discussed with your
23 counsel.

24 MS. HERKENHOFF: On that, I
25 will object to form. I still

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2 believe it could -- she may not
3 know independent of communications
4 with counsel, but if she does, she
5 can answer that yes or no.

6 A I'm still going to go with my
7 counsel.

8 Q So other than whatever
9 electronic files the vendor collected
10 and e-mails, did you provide your
11 counsel with any other -- documents
12 from any other source to produce?

13 MS. HERKENHOFF: I'm going
14 to --

15 MS. GONZALEZ: Go ahead.

16 MS. HERKENHOFF: I think that
17 reveals communications to what she
18 gave to me, so can you just ask
19 her what other files she gathered
20 for this case?

21 MS. GONZALEZ: Sure. Thank
22 you.

23 Q What other files did you
24 gather for this case other than those
25 we've already talked about?

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2 A I have screenshots of my apps
3 that were on my phone.

4 Q Did you take those
5 screenshots?

6 A Yes, I personally took those
7 screenshots.

8 Q Okay. Are those screenshots
9 of your current phone?

10 MS. HERKENHOFF: Object to
11 form.

12 A Not my current phone.

13 Q Which -- if you remember
14 which phone -- or on which phone did
15 you take the screenshots?

16 A My phone prior to this one.

17 Q Do you remember the make or
18 model of that phone?

19 A It's the Galaxy 10.

20 Q And as far as you can recall,
21 have you deleted any documents or files
22 that are covered by the document
23 request that I just showed you?

24 MS. HERKENHOFF: Object to
25 form.

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2 A Not that I could recall, no.

3 Q Were you instructed to
4 preserve documents relating to the
5 subject matter of this case?

6 MS. HERKENHOFF: That's a yes
7 or no, otherwise it could reveal
8 privileged communications and I
9 instruct you not to answer
10 further.

11 MS. GONZALEZ: Yeah.

12 Q I'm just asking for a yes or
13 no.

14 A Yes.

15 Q And did you take any steps to
16 ensure the documents were preserved?

17 MS. HERKENHOFF: Object to
18 form.

19 A Yes.

20 Q And what were those steps?

21 A I have the other phone.

22 Q Sorry. I didn't hear you.

23 A I have the other phone in my
24 possession.

25 Q What do you mean by "the

1 HIGHLY CONFIDENTIAL - MOGLIA

2 other phone"?

3 A The phone that the documents
4 have come from, the S10 phone, I have
5 it in my possession.

6 Q Okay. And that's the prior
7 phone from which you took the
8 screenshots; is that right?

9 A Correct.

10 Q Okay.

11 MS. HERKENHOFF: Counsel, is
12 this a good time for a break?
13 We've been going for an hour. I
14 don't know if the witness needs a
15 break.

16 MS. GONZALEZ: Sure. Yeah,
17 it's fine by me to take a break
18 now.

19 VIDEOGRAPHER: The time is
20 11:14. This is the end of Session
21 Number 1 and we are now off the
22 record.

23 (Whereupon, a brief recess
24 was taken.)

25 VIDEOGRAPHER: The time is

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2 long list of services I have just
3 listed for you, can you think of any
4 other Google products or services that
5 you have used?

6 MS. HERKENHOFF: Object to
7 form.

8 A Not that I could think of at
9 this time.

10 Q And putting aside the YouTube
11 subscription that we've talked about,
12 is it fair to say that, to the extent
13 you have used these other services, you
14 have been able to use them for free?

15 MS. HERKENHOFF: Object to
16 form.

17 A I believe so, yes.

18 Q Do you know whether the
19 Google Services that you have used are
20 all synched to the same Google account,
21 your [REDACTED] ?

22 A I believe they are.

23 Q So we're now going to switch
24 topics a bit and talk about your
25 devices.

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2 So when was the first time
3 you used an Android device?

4 A I have used Android devices,
5 I think, pretty much since I have had a
6 cell phone.

7 Q And do you recall about when
8 you first got a cell phone?

9 A Maybe 20 years ago, a little
10 bit less.

11 Q Have you ever owned an
12 iPhone?

13 A I have never owned an iPhone.

14 Q And why did you just use
15 Android devices over alternative
16 devices?

17 MS. HERKENHOFF: Object to
18 form.

19 A I just think Android devices
20 are simpler and a lot more advanced
21 than other devices.

22 Q What do you mean by
23 "advanced"?

24 A Like, the technologies that
25 they have on Samsung usually comes out

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2 prior to Apple products or something
3 like that, other products.

4 Q And for your Android devices,
5 have those always been Samsung devices?

6 MS. HERKENHOFF: Object to
7 form.

8 A I believe so, yes, they have.

9 Q When you say that, in your
10 view, Android devices are simpler, what
11 do you mean by that?

12 A I don't really know how to
13 answer that. I have always been an
14 Android Samsung person, so I can't
15 really answer that much.

16 Q And by "simpler," do you mean
17 user-friendly?

18 MS. HERKENHOFF: Object to
19 form.

20 A Yeah, you could say that.

21 MS. GONZALEZ: Okay. All
22 right. So now I'm going to
23 introduce what's been previously
24 marked as Defendants' Exhibit 97.

25 (Consumer Class Plaintiffs'

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2 form.

3 A To the best of my knowledge.

4 Q Okay. And if you turn to the
5 page that's marked 5398.

6 A Yes.

7 Q I'm -- sorry. I'm going to
8 withdraw that question because we've
9 already talked about that.

10 Okay. If you turn to the
11 page 5402.

12 A Okay.

13 Q Do you see, about two-thirds
14 of the way down, the page there is
15 something called Sticker of I Love
16 America?

17 Do you see that?

18 A Yes, I do.

19 Q And -- sorry. Were you going
20 to say something?

21 A No.

22 MS. HERKENHOFF: No.

23 Q And do you see that dollar
24 value is listed at \$2.14?

25 A Yes, I do.

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2 Q And do you know whether this
3 is an app or whether you purchased this
4 through an app?

5 A I believe it's purchased
6 through an app.

7 Q And which app was that?

8 A PictureGrid. I'm not sure of
9 the exact name of it.

10 Q Okay. What is PictureGrid?

11 MS. HERKENHOFF: Object to
12 form.

13 A It's a photo editing.

14 Q Photo editing app?

15 A Excuse me?

16 Q Sorry. It's a photo editing
17 app?

18 A Correct. You can make, like,
19 collages on it with pictures.

20 Q Got it.

21 And I assume that's an app
22 that you got through the Google Play
23 Store; is that correct?

24 A I believe so, yes.

25 Q Okay. Let's turn to the next

1 HIGHLY CONFIDENTIAL - MOGLIA

2 page, so the one marked 5403.

3 A Okay.

4 Q And in the top half of that
5 page there is something called Stickers
6 of Party Balloon?

7 A Yes.

8 Q Do you see that for 1.99?

9 A Yes.

10 Q Is that also an in-app
11 purchase from PictureGrid?

12 A Yes.

13 Q Okay. If you go to the next
14 page, the one marked 5404.

15 A Yes.

16 Q At the top of that page there
17 is a line item that's called the 300
18 spoons for \$5.36.

19 Do you know what that is?

20 A It's from one of the other
21 games that I used to play. I believe
22 it's the Crazy Kitchen.

23 Q And is it fair to say that's
24 an in-app purchase through Crazy
25 Kitchen?

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2 A That is correct.

3 Q And could you just describe
4 what 300 spoons means? Is that, like,
5 a point system or a -- like a currency
6 within the app?

7 MS. HERKENHOFF: Object to
8 form.

9 A I believe it's just if you
10 want to buy, like, a -- maybe, like, a
11 dish or something. You have to use
12 spoons to buy a dish or...

13 Q Okay. Makes sense.

14 Okay. So sticking on the
15 same page, the next line down is
16 something called 50 spoons.

17 I assume that's similar to
18 the 300?

19 A Correct. It's the same
20 thing.

21 Q Okay. And then the next line
22 down, Sticker of Take My Heart, is that
23 also an in-app purchase from
24 PictureGrid?

25 MS. HERKENHOFF: Object to

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2 form.

3 A Correct.

4 Q And then the next line down,
5 Sticker of beloved, is that also an
6 in-app purchase from PictureGrid?

7 MS. HERKENHOFF: Same
8 objection.

9 A That's correct.

10 Q And then there is -- I won't
11 go through each one of these line by
12 line, but there is three more listed on
13 this page: The Backgrounds of Stars,
14 Party Fun, School Life.

15 Are those also all purchased
16 through PictureGrid?

17 MS. HERKENHOFF: Object to
18 form.

19 A Correct.

20 Q Okay. Thank you.

21 If you turn to the very last
22 of this exhibit, the one ending in
23 5407.

24 A Yes.

25 Q The top of the page there is

C E R T I F I C A T I O N

STATE OF NEW YORK)

) ss.:

COUNTY OF NEW YORK)

I, JUDITH CASTORE, Shorthand Reporter
and Notary Public within and for the State
of New York, do hereby certify:

That SERINA MOGLIA, the witness whose
deposition is hereinbefore set forth, was
duly sworn by me and that this transcript
of such examination is a true record of
the testimony given by such witness.

I further certify that I am not
related to any of the parties to this
action by blood or marriage and that I am
in no way interested in the outcome of
this matter.

IN WITNESS WHEREOF, I have hereunto
set my hand this 11th day of February,
2022.



JUDITH CASTORE

1 In Re Google Play Store Antitrust Litigation

2 2/10/2022 - Serina Moglia (#5065281)

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, Serina Moglia, do hereby declare that I
5 have read the foregoing transcript, I have made any
6 corrections, additions, or changes I deemed necessary as
7 noted above to be appended hereto, and that the same is
8 a true, correct and complete transcript of the testimony
9 given by me.

10
11 _____
12 Serina Moglia

_____ Date

13 *If notary is required

14 SUBSCRIBED AND SWORN TO BEFORE ME THIS

15 _____ DAY OF _____, 20____.

16
17
18 _____
19 NOTARY PUBLIC
20
21
22
23
24
25

REDACTED VERSION

Exhibit A45 to C. Cramer Declaration

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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

**IN RE GOOGLE PLAY STORE
ANTITRUST LITIGATION**

THIS DOCUMENT RELATES TO:

*In re Google Play Consumer Antitrust
Litigation*, Case No. 3:20-cv-05761-JD

Case No. 3:21-md-02981-JD

**DEFENDANTS' OPPOSITION TO
PLAINTIFFS' CLASS CERTIFICATION
MOTION**

Judge James Donato

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INTRODUCTION

Class certification should be denied here for a simple reason: real-world data show that the vast majority of putative class members suffered no antitrust impact, which means individual “mini-trials” would be necessary to identify any consumers who may have been injured. Plaintiffs spend the bulk of their motion (ECF No. 280 (“Mot.”)) attacking Google’s business practices by misconstruing evidence and brushing aside competitive realities. Contrary to Plaintiffs’ claims, Google’s business practices with respect to Android and Google Play (“Play”) have increased competition, expanded access to mobile devices, and facilitated an explosion of app development that has benefited consumers and developers. Plaintiffs ignore these benefits, and instead argue that Play is akin to a “payment processor,” failing to account for the incredible value it provides to billions of users. But even accepting Plaintiffs’ liability theory, the focus at class certification is whether Plaintiffs have common evidence that can identify which (if any) class members suffered antitrust impact as a result of Google’s conduct. They do not.

Plaintiffs seek to certify a class of consumers that purchased software applications (“apps”), subscriptions, and in-app purchases (“IAPs”) from developers. They claim Google’s conduct resulted in higher service fees, and that developers passed through those fees by raising prices for *all* consumers. Plaintiffs rest this theory entirely on their expert, Dr. Hal Singer, who opines that the laws of economics predict that *all* developers would change prices in response to changes in Google’s service fee. But Dr. Singer cannot reconcile his theoretical formulas with real-world evidence showing that pass-through of the service fee is a rare exception, not the rule. When Google has lowered its service fees in the past, nearly all developers *did not* change prices. Dr. Singer has no sound explanation for why the data resoundingly contradict his theory.

These data show that Plaintiffs cannot assume that the developer of each app would set lower prices if Google charged lower service fees. Plaintiffs must prove whether developers would have reduced prices for each of the approximately 272,500 unique apps involved in purchases by more than 21 million putative class members. After all, roughly 8.4 million of those consumers, or 39%, only made purchases from one app. If that app’s developer did not pass through any service fees, then those millions of consumers were not injured. That is why pass-

1 through must be proven for each app to identify whether each consumer was injured.

2 Pass-through depends on facts that vary by app: *e.g.*, the developer’s marginal costs,
3 pricing strategy, and competitive conditions. Dr. Singer concedes he has no model to estimate or
4 account for these variables, meaning Plaintiffs would have to conduct app-by-app analyses for
5 hundreds of thousands of different apps to identify any consumers who were injured. Courts
6 regularly deny certification where impact depends on such an individualized question. And that
7 would not be the only one. Because Google has responded to competition by reducing service
8 fees for some developers but not others, a “mini-trial” also would be necessary to determine
9 whether a developer would have been subject to a lower service fee in the but-for world.

10 Plaintiffs’ alternative Play Points theory fares no better. Plaintiffs claim that, in the but-
11 for world, Google would have increased rewards in its Play Points loyalty program. However,
12 most consumers did not enroll in or use the program. Thus, to prove which consumers suffered
13 antitrust impact under this Play Points theory, Plaintiffs must prove which consumers would have
14 made a different decision to enroll and use points in the but-for world. Dr. Singer concedes that
15 he has no model to determine what each consumer would have done regarding Play Points, which
16 means Plaintiffs would need to prove that fact consumer by consumer.

17 Plaintiffs’ motion fails for additional reasons. *First*, many consumers benefit from the
18 business model Plaintiffs have challenged, and Plaintiffs have no common method of proving
19 whether a particular consumer would have been better off with or without that model. *Second*, an
20 agreement between Plaintiffs’ counsel and the State AGs creates financial conflicts and dual
21 loyalties that prevent Plaintiffs’ counsel from adequately representing the proposed class.
22 *Finally*, Plaintiffs have not met the standards to certify an injunctive relief class that includes
23 consumers who never made any purchases in Play because they cannot show that an injunction
24 would be appropriate for all class members. They have not specified the injunction they seek, nor
25 shown that an injunction is needed to remedy any harm to consumers who have benefited from
26 Play without paying a cent. If anything, issuing an injunction requiring Google to change its
27 business model would harm consumers who benefit from Play without paying anything.

28 The Court should deny Plaintiffs’ motion for class certification.

BACKGROUND

I. FACTS RELEVANT TO CLASS CERTIFICATION

A. Google Play

Play is a platform that facilitates transactions between consumers and developers. Declaration of Sujal Shah, Ex. A (Expert Report of Dr. Michelle Burtis (“Burtis”)) ¶ 59. Developers offer, and consumers find and download, apps for Android devices through Play. *Id.* As of May 5, 2021, there were over 4 million apps listed in Play with widely differentiated functions, from games to productivity to entertainment to dating to tools. Games are also highly differentiated, ranging from casual puzzle games to complex role-playing games that demand considerable memory and graphics capabilities. *Id.* ¶ 157. Developers choose the category in which to list their apps on Play, and apps in each category are highly varied. *Id.* ¶ 158.

Developers have many options for monetizing apps distributed on Play, including selling the app (“paid app”), selling a subscription to access content in the app (“subscription app”), selling digital content in the app (“IAP app”), or showing ads in the app. *Id.* ¶ 53. Roughly 90% of apps are completely free, meaning they are free to download and do not offer IAP or subscriptions (though they may display ads). *Id.* Ex. 1. Free apps accounted for 36% to 79% of the apps installed by the proposed class representatives. *Id.* Ex. 22. Most developers that offer IAPs or subscriptions adopt a “freemium” model in which consumers can download and use an app for free, with the option to purchase a subscription or IAP for additional functionality. *Id.* ¶¶ 54–56. During the class period, the class representatives only made a purchase from 4% to 12% of the apps they installed on their devices, meaning they enjoyed 88% to 96% of the apps they installed without buying anything using Google Play’s billing system. *See id.* Ex. 22.

B. Google Play’s Business Model

Besides a one-time \$25 fee, which Plaintiffs do not challenge, Google does not charge developers anything to list or distribute apps on Play. *Id.* ¶ 60 & n.39. Instead, Google monetizes Play in part by charging a service fee on sales of paid apps, subscriptions, and IAPs. Google does not charge the developer a service fee unless the developer makes money; Google’s service fee is a percentage of the revenue (“consumer spend”) generated by these sales. *Id.* ¶ 62. This is a

1 common business model employed by a number of Google’s competitors including, for example,
2 Apple, Samsung, Amazon, Steam, and Microsoft Xbox. *Id.* Ex. 28.

3 Nearly all consumer spend by U.S. consumers—99%—is on subscriptions and IAP, not
4 paid apps. *Id.* Ex. 4. Play’s Payments Policy requires developers selling subscriptions and/or
5 IAPs in apps distributed through Play to use Google Play’s billing system. This ensures that
6 consumers have a safe, trusted, and secure billing system and that Google can efficiently collect
7 fees for the value Play provides, which includes distribution to nearly 3 billion users; protection
8 from malware and other unwanted apps; developer tools to launch and grow apps; and user tools
9 to manage purchases, subscriptions, and parental controls. Shah Decl., Ex. J (“Feng Dep.”), at
10 62:11–21, 113:18–114:24.

11 Google’s service fees have changed over time, and it has “moved beyond a ‘one size fits
12 all’ service fee model.” Burtis n.131. Some developers pay a 30% fee, which for a long time was
13 industry standard. *Id.* n.55. Certain developers are eligible for programs that have service fees at
14 15%, [REDACTED], or [REDACTED] *Id.* ¶ 84. In response to competition, Google also lowered certain
15 developers’ effective service fees through bespoke deals. *Id.* ¶ 68. Developers in these programs
16 or with these deals accounted for [REDACTED] of U.S. consumers’ spend in 2021. *Id.* Ex. 17. In January
17 2018, Google reduced its service fee for subscriptions after the first year to 15%, and in January
18 2022, reduced the service fee for all subscriptions to 15%. *Id.* ¶ 71. In July 2021, Google
19 reduced its service fee for the first \$1 million in annual developer earnings to 15%. *Id.*

20 C. The Putative Consumer Classes

21 During the class period,¹ over 21 million putative class members purchased a paid app,
22 subscription, and/or IAP from over 272,500 unique apps. Declaration of Michelle Burtis, Ex. A
23 (Burtis Rev. Ex. 20).² Roughly 8.4 million (39%) putative class members only made purchases
24 from one app during the class period, and 4.4 million (20%) only made a *single purchase* during
25 the class period. *Id.*, Ex. B (Burtis Rev. Ex. 21); *id.*, Ex. D (Burtis Rev. Ex. 24). More than 3
26

27 ¹ Although Plaintiffs’ class period goes to the present, Google’s data production only goes
through July 2021. Unless otherwise noted, “class period” refers to August 2016 to July 3, 2021.

28 ² These numbers may be overstated because they refer to distinct consumer IDs in Google’s
databases, and a consumer may have more than one consumer ID. Burtis n.102.

1 million putative class members (15%) spent *less than \$5* during the class period, and more than
 2 half the putative class spent less than \$50. *Id.*, Ex. C (Burtis Rev. Ex. 23).

3 There are also millions of Android device users that do not purchase any paid apps,
 4 subscriptions, or IAPs. From 2016 to 2021, there were an estimated 108 to 131 million Android
 5 smartphone users in the United States.³ During that time, only approximately 92 million U.S.
 6 consumers purchased a paid app, subscription, and/or IAP through Play. Burtis Ex. 20.⁴

7 **D. Fees and Prices**

8 Developers, not Google, set the prices for paid apps, subscriptions, and IAP they sell
 9 through Play.⁵ As explained in more detail below, whether a developer would choose to lower its
 10 price in response to a lower service fee depends on a number of factors, including the developer's
 11 marginal costs, focal point pricing, the competition faced by the developer, and other
 12 idiosyncratic factors. *See* Burtis ¶¶ 142–56. Google's service fee may not affect how a developer
 13 sets prices. For example, a number of named Developer Plaintiffs testified that they did not
 14 consider Google's service fee when setting prices. *E.g.*, Shah Decl., Ex. B ("Ellis Dep.") at
 15 256:9–22 (LittleHoots); *id.*, Ex. C ("Scalise Dep.") at 212:9–214:11 (Rescue Pets); *id.*, Ex. D
 16 ("Czeslawski Dep.") at 306:4–307:3 (PSB).

17 Notably, real-world data show that when Google reduced service fees for certain
 18 developers, most of them *did not* reduce prices. For individual items (SKUs) sold by developers
 19 subject to a reduction in the service fee, "less than 2% of prices" for IAPs and subscriptions—and
 20 only "between 1% and 13% of prices" for paid apps—changed after a service fee rate decline.
 21 Burtis ¶ 176. Executives of several Developer Plaintiffs' class representatives testified they *did*
 22 *not* lower prices following a service fee reduction. Scalise Dep. at 214:12–24 (Rescue Pets);
 23 Czeslawski Dep. at 315:17–316:6 (PSB); Ellis Dep. at 265:21–266:4 (LittleHoots).

24 **E. Play Points**

25 Google introduced a rewards program, Play Points, in the U.S. in November 2019. Burtis

26
 27 ³ <https://www.statista.com/statistics/232786/forecast-of-android-users-in-the-us/>.

⁴ This figure overstates the number of consumers that made a purchase because it is based on distinct consumer IDs and not individual consumers. *See* n.2, above.

28 ⁵ For most of the class period, prices ranged from a minimum \$0.99 to a maximum \$400 price. Play recently changed the minimum price allowed to \$0.05. Burtis n.33.

¶ 352. Consumers must register for the program and earn “loyalty points” based on purchases. *Id.* ¶¶ 352–53. Play Points can be redeemed for Play Credits, to purchase items in Play, or redeemed for special IAPs. *Id.* ¶ 352. From November 2019 through 2021, █████ of U.S. consumers registered for Play Points. *Id.* ¶ 354. From the launch of the program through July 3, 2021, no more than approximately █████ of U.S. consumers have redeemed Play Points, either by using points to purchase an item or exchanging points for Play Credits. *Id.* ¶ 355.

II. EXPERT ANALYSIS OF DR. MICHELLE BURTIS

Accounting for these and other facts explained below, Google’s expert, Dr. Michelle Burtis, opines that individual analysis of impact is necessary for the following reasons:

- Whether any developer would lower prices to consumers in response to a lower service fee requires an individualized analysis considering a host of factors. *Id.* ¶¶ 23–25.
- Dr. Singer’s opinion that pass-through would be universal is “verifiably wrong” because when Google reduced service fees, developers mostly did not lower prices. *Id.* ¶ 29.
- Google would not uniformly reduce service fees in the but-for world, and determining which apps would be subject to lower rates requires an individual analysis. *Id.* ¶¶ 11–20.
- Not all consumers sign up for Play Points, and only a fraction of those users ever redeem those points, so proof of an injury from a reduction in Play Points requires individual proof of whether each consumer would have signed up and used those points. *Id.* ¶¶ 36.
- Many putative class members benefited from the challenged conduct by obtaining free apps and secure devices; an individualized analysis would be required to determine whether each consumer would have been better off in the but-for world. *Id.* ¶¶ 37, 40.

Based on this evidence, Dr. Burtis concludes that Plaintiffs cannot rely on common evidence to show that all or nearly all class members were impacted.

LEGAL STANDARD

Plaintiffs must prove by a preponderance of the evidence that their proposed classes satisfy Rule 23(a)’s numerosity, commonality, typicality, and adequacy requirements, as well as Rule 23(b)(2) and (b)(3). *Olean Wholesale Grocery Coop., Inc. v. Bumble Bee Foods LLC*, 31 F.4th 651, 663–65 (9th Cir. 2022) (en banc). This “rigorous analysis” will “[f]requently . . . overlap with the merits.” *Wal-Mart Stores, Inc. v. Dukes*, 564 U.S. 338, 351 (2011). “[W]here necessary,” courts may “resolv[e] expert disputes” to determine whether Rule 23’s requirements are met. *Olean*, 31 F.4th at 666 (alteration and quotation marks omitted).

1 Rule 23(b)(3) requires Plaintiffs to show that common questions “are more prevalent or
 2 more important than the . . . individual issues.” *Id.* at 664 (quotation marks omitted). This
 3 requires proof that “essential elements of the cause of action, such as . . . an antitrust violation or
 4 antitrust impact, are capable of being established through a common body of evidence, applicable
 5 to the whole class.” *Id.* at 666 (quotation marks omitted). Antitrust impact—that is, “the fact of
 6 damage that results from a violation of the antitrust laws”—is “critically important for . . . Rule
 7 23(b)(3)’s predominance requirement.” *In re High-Tech Emp. Antitrust Litig.*, 289 F.R.D. 555,
 8 565–66 (N.D. Cal. 2013) (quotation marks omitted).

9 Class certification is inappropriate when “the need to identify uninjured class members
 10 will predominate and render an adjudication unmanageable,” such as when plaintiffs propose “no
 11 further way—short of full-blown, individual trials”—to determine whether class members were
 12 injured. *Olean*, 31 F.4th at 669 n.13 (quotation marks omitted). Moreover, “where injury-in-fact
 13 is a required element of a claim, as it is in an antitrust action, a class cannot be certified based on
 14 an expectation that the defendant will have no opportunity to press at trial genuine challenges to
 15 allegations of injury-in-fact.” *Id.* at 669 (citation omitted). “When a class is defined so broadly
 16 as to include a great number of members who for some reason could not have been harmed . . .
 17 the class is defined too broadly to permit certification.” *Id.* at n.14 (quotation marks omitted).
 18 Indeed, the Supreme Court has held that “[e]very class member must have Article III standing in
 19 order to recover individual damages.” *TransUnion LLC v. Ramirez*, 141 S. Ct. 2190, 2208
 20 (2021). This Court must thus “determine whether individualized inquiries into this standing issue
 21 would predominate over common questions.” *Olean*, 31 F.4th at 668 n.12.

22 To certify a class seeking an injunction under Rule 23(b)(2), plaintiffs must show that “a
 23 single injunction . . . would provide relief to each member of the class.” *Dukes*, 564 U.S. at 360.
 24 Plaintiffs must describe the “general contours” of the relief they seek, and that relief must be
 25 “more specific than a bare” instruction “to follow the law.” *B.K. by next friend Tinsley v. Snyder*,
 26 922 F.3d 957, 972 (9th Cir. 2019) (quotation marks omitted).
 27
 28

ARGUMENT

I. PLAINTIFFS CANNOT DEMONSTRATE THAT ALL OR NEARLY ALL CLASS MEMBERS SUFFERED ANTITRUST IMPACT USING COMMON PROOF.

As Plaintiffs acknowledge, “what really matters is whether the class can point to common proof that will establish antitrust injury . . . on a class wide basis.” Mot. at 19 (quoting *In re Capacitors III*, 2018 WL 5980139, at *8 (N.D. Cal. 2008)). But Plaintiffs have no common proof that developers would have passed through lower service fees in the but-for world—or that developers would have had lower service fees at all. Nor do they have common proof of which consumers would have been injured under their Play Points theory. That is fatal to class certification because, as the Ninth Circuit noted in *Olean*, courts have “held that Rule 23(b)(3)’s predominance requirement is not satisfied when the need to identify uninjured class members will predominate.” 31 F.4th at 669 n.13 (citing *In re Rail Freight Fuel Surcharge Antitrust Litig.-MDL No. 1869 (Rail Freight II)*, 934 F.3d 619, 625 (D.C. Cir. 2019) and *In re Asacol Antitrust Litig.*, 907 F.3d 42, 53–54 (1st Cir. 2018)). Plaintiffs also fail to account for the benefits many class members received from Google’s conduct. Finally, because Plaintiffs lack a common method for calculating damages, individual damages issues will predominate.

These problems are all amplified by Plaintiffs’ decision to seek certification limited to consumers “in [17] U.S. states and territories,” but not states whose State AGs are plaintiffs. Mot. at i & 3. Plaintiffs do not explain whether their proposed class is limited to current residents of the 17 states and territories or includes individuals who were present in one of those jurisdictions when they made a purchase, or something else. Regardless, during the class period, millions of Play consumers likely moved between a class state and a non-class state. An individual may have purchased nothing while a Georgia resident (in the class) but then moved to California (not in the class) and made a purchase there. Thus, beyond the individualized inquiries discussed below, it will be necessary to consider each individual transaction and determine where the user resided or was located at the time of purchase to determine if it is part of the claim. Plaintiffs do not propose any method for sustaining their burden to make this showing with common proof.

1 **A. Plaintiffs Have No Common Proof of Pass-Through.**

2 **1. Individual Issues Predominate Because Pass-Through Requires An**
 3 **App-By-App Analysis Not Susceptible To Common Proof.**

4 Plaintiffs’ main theory of antitrust impact depends on “pass-through from developers.”
 5 Mot. at 12. As the Supreme Court has explained, if the developer of an app did not pass on
 6 service fees by raising prices, then a consumer of that app was not injured. *See Apple Inc. v.*
 7 *Pepper*, 139 S. Ct. 1514, 1523 (2019) (no damages where “consumers would pay the same retail
 8 price regardless of whether Apple’s commission was 10 percent or 30 percent”). Approximately
 9 8.4 million consumers—39% of the proposed class—made purchases involving one app. Burtis
 10 Decl., Ex. B (Burtis Rev. Ex. 23). These consumers were not injured if the developer of the app
 11 did not pass-through any allegedly inflated service fees through higher prices. Plaintiffs lack
 12 common proof of pass-through needed “to identify uninjured class members.” *Olean*, 31 F.3d at
 13 669 n.13. Plaintiffs’ proof of impact consists entirely of expert testimony from Dr. Singer, Mot.
 14 at 12–13, which is unreliable and inadmissible for the reasons explained in Google’s *Daubert*
 15 motion, ECF No. 282.

16 Regardless, unlike *Olean*, this is not a case where a defendant merely disputes whether the
 17 factfinder should find a plaintiffs’ expert “persuasive[]” or “unpersuasive.” 31 F.4th at 667, 678.
 18 The problem here is that Plaintiffs’ expert evidence is not “capable of resolving a class-wide
 19 question in one stroke,” an issue that *Olean* directs district courts to resolve. *Id.* at 666. Dr.
 20 Singer’s opinion is based on a theoretical model that contradicts real-world data that pass-through
 21 was rare. The only analysis of actual service fee and price data in the record (by Google’s expert
 22 Dr. Burtis) shows that when Google reduced service fees for many transactions in 2018, 2021,
 23 and 2022, developers in the data set only reduced prices for about 2% of products subject to the
 24 service fee reductions. *See* Burtis ¶ 103, Fig. 13. An analysis of more limited data by the
 25 Developer Plaintiffs’ expert puts the percentage of apps that pass through any amount of lower
 26 costs to consumers at only 8%. *Id.* at 291 n.348.

27 Evidence that pass-through was minimal shows that pass-through must be **proven** for each
 28 app, not assumed for all apps. Proof of pass-through is “more complex” because it “must account

1 for the actions of innocent intermediaries who allegedly passed on the overcharge.” *In re*
 2 *Graphics Processing Units Antitrust Litig.* (“GPU”), 253 F.R.D. 478, 499 (N.D. Cal. 2008). This
 3 can make “the predominance standard more difficult to meet.” 6 Newberg on Class Actions
 4 § 20:53 (5th ed.); *cf. Illinois Brick Co. v. Illinois*, 431 U.S. 720, 742 (1977) (noting “difficulties
 5 that have been encountered” with “statistical techniques used to estimate” pass-through). The
 6 sheer number of unique app transactions involved here amplifies the challenge. Whether a
 7 developer would have passed through a lower service fee to consumers in the but-for world
 8 requires analyzing pass-through for each of the roughly 272,500 unique apps involved in
 9 purchases by putative class members. Thus, in order “to identify uninjured class members”
 10 without “render[ing] an adjudication unmanageable,” *Olean*, 31 F.4th at 669 n.13, the factfinder
 11 must have a method of proving pass-through for every one of the hundreds of thousands of apps
 12 involved in transactions by putative class members.

13 Plaintiffs have no such model. As the real-world data confirms, whether a developer
 14 would pass through a lower service fee depends on multiple variables—marginal costs, focal
 15 point pricing, competitive conditions, and other idiosyncratic factors—that defy common proof.
 16 That app-by-app analysis of pass-through is not “susceptible to generalized, class-wide proof”
 17 because Plaintiffs “will need to present evidence that varies from member to member.” *Tyson*
 18 *Foods, Inc. v. Bouaphakeo*, 577 U.S. 442, 453 (2016). Thus, “the only way to fully assess pass-
 19 through in this action would be” through “thousands of mini-trials, rendering this case
 20 unmanageable and unsuitable for class action treatment.” *GPU*, 253 F.R.D. at 505.

21 **Marginal costs.** In the standard economic model that Dr. Singer identifies for how an
 22 increase in service fees would affect a developer’s price, any effect depends on the developer’s
 23 marginal cost. Shah Decl., Ex. G (“Singer Dep.”) at 105:8–106:3, 107:23–109:14; *id.*, Ex. H
 24 (Expert Report of Dr. Hal Singer (“Singer”)) ¶ 225 & n.495. Thus, if a developer’s marginal cost
 25 of producing an additional IAP is zero, then according to Dr. Singer, “prices would not adjust”
 26 and there would be no pass-through—even if a developer paid a lower service fee. Singer Dep. at
 27 109:15–110:3. Economic literature recognizes that many digital goods have zero marginal costs.
 28 Burtis ¶¶ 142–43. Dr. Singer’s report relies on an article stating that the “replication cost of

1 digital goods is zero.” Singer Dep. at 95:22–98:19.⁶ And Dr. Singer testified that the “150th
2 sword” purchased in a videogame “doesn’t cost any more to replicate.” Singer Dep. at 98:10–19.

3 Thus, under Dr. Singer’s economic model, pass-through depends on marginal costs, but
4 Plaintiffs have no common proof of each developer’s marginal costs for each app. As Dr. Singer
5 testified, “the marginal cost to a developer of supplying an additional in-app purchase could vary
6 from developer to developer.” Singer Dep. at 95:15–18. Dr. Singer did not try to estimate any
7 developer’s marginal costs, *id.* at 90:20–91:2, 91:22–92:7, or use the standard economic model
8 that depends on them. *Id.* at 382:6–15. Instead, he used a simple ratio that “doesn’t actually
9 depend on what the marginal cost of the developer is”: the quantity of an app’s transactions
10 divided by the quantity of transactions in the category in which the developer lists the app in Play.
11 *Id.* at 91:3–8; *see id.* at 190:20–192:3 (testifying that the “beauty” of this formula is that “we
12 don’t need to estimate the marginal costs”). Dr. Singer’s model simply ignores the individualized
13 issues specific to marginal costs that must be examined to determine whether a developer would
14 have raised prices and thus whether a consumer who purchased from that developer was injured.

15 **Focal point pricing.** Proof of pass-through also requires an inquiry into whether the
16 developer of each app uses “focal point pricing,” a “well-established concept in economics” in
17 which firms set prices ending in “99” cents. *Id.* at 197:19–198:4; Burtis ¶ 149. The prices for
18 some 97% of U.S. consumers’ retail app transactions ended in “99,” and over 80,000 developers
19 used prices ending in “99” during the class period. Burtis ¶ 149, Fig. 7; *id.* at Table 9; *cf. In re*
20 *Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *8 (N.D. Cal. 2022) (“overwhelming
21 evidence suggests that developers would choose to price their apps at focal points ending in 99
22 cents”). Pass-through is unprofitable where “the reduction from one” focal price point “to the
23 next would be so large that the developer would lose profits.” Burtis ¶ 150.

24 Dr. Singer’s formula does not account for focal point pricing. Singer Dep. at 205:19–
25 206:8. This alone is grounds for denying certification. *In re Lithium Ion Batteries Antitrust*
26 *Litig.*, 2018 WL 1156797, at *3 (N.D. Cal. 2018) (denying certification where expert failed to
27

28 ⁶ Shah Decl., Ex. E (Avi Goldfarb & Catherine Tucker, *Digital Economics*, 57 J. Econ. Lit. 3, 12 (2019) (DX 335)).

1 “adequately account for the effects of focal point pricing”); *In re Optical Disk Drive Antitrust*
 2 *Litig.* (“*ODD*”), 303 F.R.D. 311, 325 (N.D. Cal. 2014) (same where expert did not address “the
 3 common practice in the industry of selling products costing in the hundreds of dollars at prices
 4 just under the next \$100 mark”); *Apple iPhone*, 2022 WL 1284104, at *8 (same in part because
 5 “focal pricing” showed that expert’s model did not reliably “determin[e] but-for pricing”).

6 Plaintiffs claim to “have established a record demonstrating that focal-point pricing is not
 7 integral to developers’ pricing in a but-for world” and “is unnecessary to include in a pricing
 8 model.” Mot. at 23 n.16 (citing Shah Decl., Ex. I (Expert Reply Report of Dr. Hal Singer
 9 (“Singer Reply”)) ¶¶ 26–30). But Dr. Singer admitted the opposite—that “focal point pricing is
 10 an important consideration here,” Singer Dep. at 202:2–7, and the portion of Dr. Singer’s Reply
 11 Report cited by Plaintiffs only underscores the need for an app-by-app inquiry. There, Dr. Singer
 12 speculates that developers “*could*” end their prices in “9” rather than “99”, and hypothesizes how
 13 departing from focal point pricing *could* be profitable under certain assumptions. Singer Reply
 14 ¶¶ 29–30 (emphasis added). But, yet again, determining whether any developer *would* do so in
 15 the but-for world requires data about each app.⁷

16 **Competitive conditions.** A developer’s price also may depend on the competition it
 17 faces, which varies from app to app. Burtis ¶ 155–60. Dr. Singer agrees that “competition
 18 among developers makes their pricing interdependent” and that “the prices that developers charge
 19 in the but-for world could depend on what their competitors charge.” Singer Reply ¶ 118; Singer
 20 Dep. at 167:3–6; *see also* Scalise Dep. at 212:9–19 (Rescue Pets CEO testifying he considered
 21 prices of similar apps when setting prices for Rescue Pets to ensure its prices “aren’t out of the
 22 realm of reasonability and they are not too low either”). Yet Plaintiffs have no common method
 23 to account for how the varied competition faced by hundreds of thousands of different apps
 24 affects how developers set prices for those apps. Given Dr. Singer’s admitted failure to “put forth
 25 a model . . . to determine which apps in each category are complements and which are
 26 substitutes,” Singer Dep. 159:15–25, Dr. Singer’s method cannot account for variations in
 27

28 ⁷ Google required developers to charge at least \$.99, Mot. at 22, but that restriction applies to
 17% of U.S. consumer transactions, not the 80% of other transactions that also ended in “99.”

1 competition that he concedes affect pass-through. That is fatal to Plaintiffs' certification bid. *See*
 2 *Exhaust Unlimited, Inc. v. Cintas Corp.*, 223 F.R.D. 506, 513 (S.D. Ill. 2004) (denying
 3 certification where "the but-for-price-what a customer would pay" depended on variable
 4 "competitive dynamics"); *Dry Cleaning & Laundry Inst. of Detroit, Inc. v. Flom's Corp.*, 1993
 5 WL 527928, at *5 (E.D. Mich. 1993) (same where plaintiffs did not "account the varying markets
 6 for dry cleaning and laundry supplies"); *Burkhalter Travel Agency v. MacFarms Int'l, Inc.*, 141
 7 F.R.D. 144, 154 (N.D. Cal. 1991) (same where sales took place in a "diversity of markets").

8 **Other idiosyncratic factors.** There are many other reasons why a developer may not
 9 pass through a service fee reduction. For example, if the developer would have invested savings
 10 from reduced service fees in improving or marketing its app instead of reducing prices, the app's
 11 consumer was not injured. Although Dr. Singer testified that "standard economics would give
 12 developers an incentive to respond to lower service fees by reducing prices *and* improving
 13 quality," he "doesn't measure whether any developer would actually invest, or how much they
 14 would invest, in improving the quality of their app in the but-for world." Singer Dep. at 53:24–
 15 54:3 (emphasis added), 56:14–57:5. A developer may also simply pocket the savings, *see* Ellis
 16 Dep. at 267:16–268:3, or donate it to charity, *see* Scalise Dep. at 207:14–17. Or the developer
 17 may think its prices are "fair" or neither "super expensive" nor "too cheap." *See* Czeslawski Dep.
 18 at 316:7–317:5 (PSB did not lower prices following a service fee reduction because "[w]e still
 19 feel this is a fair price for our app"); Ellis Dep. at 241:7–13 (when Little Hoots set prices, "we
 20 wanted it to feel like it wasn't super expensive," "[b]ut we also didn't want it to feel too cheap
 21 either"). Plaintiffs have no method other than thousands of mini-trials to prove which developers
 22 would have actually reduced prices, and for which products, in response to lower service fees.⁸

23 2. Dr. Singer's Pass-Through Model Is Based On Theoretical Assumptions 24 Instead Of Analyses Typically Relied Upon By Other Courts.

25 Plaintiffs insist they have common proof of impact from pass-through because "there are

26 ⁸ *Olean* directs that a class not be "defined so broadly as to include a great number" of uninjured
 27 members, which is dispositive here. 31 F.4th at 669 n.14. It likewise follows that Plaintiffs
 28 cannot demonstrate, through common evidence, injury in fact to all class members, or that no
 more than a *de minimis* number of class members are uninjured. *See Rail Freight II*, F.3d at 624–
 625; *Asacol*, 907 F.3d at 53–54.

1 well-accepted econometric techniques—some of which Dr. Singer utilized in this case—for
 2 demonstrating ‘antitrust impact in markets with individualized differences among purchasers.’”
 3 Mot. at 22 (quoting *Olean*, 31 F.4th at 674). This is misleading. Although Dr. Singer “typically”
 4 analyzes pass-through by “regressing retail price changes on wholesale price changes,” Singer
 5 Dep. at 134:25–135:6, he did not run any regression to calculate pass-through rates here, *id.* at
 6 164:18–165:12. Instead, Dr. Singer employed a formula that always predicts pass-through and
 7 thus “assumes the very proposition that the [Plaintiffs] are now offering it, in part, to show.”
 8 *ODD*, 303 F.R.D. at 321 (denying class certification). As Dr. Singer testified, his pass-through
 9 formula of 100 minus the ratio of an app’s transactions to transactions in the category the
 10 developer chose “will always produce a pass-through rate” so long as an app does not account for
 11 100% of a given category, which no app does. Singer Dep. at 181:23–183:7.

12 This case is therefore unlike the cases cited by Plaintiffs where experts analyzed the
 13 effects of price-fixing using regressions.⁹ For example, in *Olean*, plaintiffs’ experts “performed a
 14 separate regression analysis to determine if [the alleged] overcharges passed through to the”
 15 plaintiffs. 31 F.4th at 683. Such regressions, if properly conducted, may “control for the effects
 16 of the differences among class members and isolate the impact of the alleged antitrust violations
 17 on the prices paid by class members.” *Id.* at 677.¹⁰ Dr. Singer ran no such regression.

18 Instead, Dr. Singer claims that the conclusion that “all or almost all developers would pass
 19 through to consumers at least a portion of any savings from” reduced service fees “flows from the
 20 elementary economic principle that prices depend on costs.” Singer Reply ¶ 70; *see* Singer ¶ 223.

21
 22 ⁹ *See In re Urethane Antitrust Litig.*, 768 F.3d 1245, 1251 (10th Cir. 2014); *In re Vitamins*
 23 *Antitrust Litig.*, 209 F.R.D. 251, 266–67 (D.D.C. 2002); *Capacitors*, 2018 WL 5980139, at *6; *In*
 24 *re Disposable Contact Lens Antitrust Litig.*, 329 F.R.D. 336, 421 (M.D. Fla. 2018); *In re TFT-*
 25 *LCD (Flat Panel) Antitrust Litig.*, 267 F.R.D. 583, 602–03 (N.D. Cal. 2010).

26 ¹⁰ Plaintiffs’ cases are inapposite for additional reasons. Two involved evidence from guilty pleas
 27 “showing that defendants themselves acknowledged that ‘their collusion had a wide impact on
 28 prices.’” *Capacitors*, 2018 WL 5980139, at *8; *see also TFT-LCD*, 267 F.R.D. at 605 (citing
 guilty pleas). *In re Glumetza Antitrust Litig.*, 336 F.R.D. 468 (N.D. Cal. 2020), and *In re*
Suboxone (Buprenorphine Hydrochloride & Nalaxone) Antitrust Litig., 421 F. Supp. 3d 12 (E.D.
 Pa. 2019), are distinguishable because they involved allegations that all consumers who would
 have purchased lower-priced generic drugs rather than brand versions were harmed by the
 exclusion of the generic drugs from the market. And defendants in *In re Mercedes-Benz Antitrust*
Litig., 213 F.R.D. 180 (D.N.J. 2003), “were homogeneous, selling mass-produced luxury
 automobiles and providing essentially inter-changeable services.” *Id.* at 189.

1 But a *theory* of universal pass-through is not common proof. *See GPU*, 253 F.R.D. at 496 (expert
 2 “may not meet his burden by simply stating that ‘economic theory’ dictates that prices for retail
 3 and wholesale purchases generally go up together”); *In re Flash Memory Antitrust Litig.*, 2010
 4 WL 2332081, at *11 (N.D. Cal. 2010) (rejecting method based on “economic theory of pass-
 5 through” because pass-through was “more complex than the theoretical model”).

6 Plaintiffs’ reliance on Dr. Singer’s theory of universal pass-through is particularly
 7 improper where real-world evidence shows that pass-through is exceptional. Unlike Dr. Burtis,
 8 Dr. Singer has not done any analysis of pass-through using actual data on prices and service fees.
 9 Singer Dep. at 141:18–142:17. His failure to account for real-world data “casts doubt on whether
 10 there was any pass-through at all,” which is yet another well-accepted ground for denying
 11 certification. *See In re Pre-Filled Propane Tank Antitrust Litig.*, 2021 WL 5632089, at *12
 12 (W.D. Mo. 2021) (rejecting pass-through theory because evidence showed that retailers
 13 “maintained the same retail price” despite changes in their wholesale cost); *In re Digital Music*
 14 *Antitrust Litig.*, 321 F.R.D. 64, 94 (S.D.N.Y. 2017) (“determining the correct pass-through would
 15 require conducting separate inquiries for each [digital music service]” where evidence showed
 16 that Walmart charged a uniform retail price, suggesting a zero pass-through rate for Walmart’s
 17 sales); *see also Olean*, 31 F.4th at 666 (“where necessary,” district courts may “resolv[e] expert
 18 disputes”); *Ellis v. Costco Wholesale Corp.*, 657 F.3d 970, 983 (9th Cir. 2011) (similar).

19 Courts have so held in cases involving both Dr. Burtis and Dr. Singer. *See Flash Memory*,
 20 2010 WL 2332081, at *11 (denying certification where Dr. Burtis presented evidence that
 21 “different retailers respond to cost changes in different ways, with some choosing not to pass-
 22 through cost changes”); *In re Florida Cement & Concrete Antitrust Litig.*, 278 F.R.D. 674, 685
 23 (S.D. Fla. 2012) (denying certification despite Dr. Singer’s opinion that “pass through *should*
 24 occur” because evidence showed direct purchasers “did not consistently pass on” price increases).

25 Dr. Singer asserts that the real-world data are not informative because Google reduced
 26 service fees while engaged in the challenged conduct, which prohibited developers from
 27 “steering” users to platforms other than Google Play using in-app communications. Singer Reply
 28 ¶ 100. However, Dr. Singer has not conducted any empirical analysis of steering on real-world

1 pass-through rates. Singer Dep. at 239:2–13, 240:2–241:1, 246:3–12. Moreover, Dr. Singer
 2 testified that there are “explanations for how pass-through would occur in the presence of the
 3 anti-steering restraint,” *id.* at 242:15–22, and that he “would expect pass-through regardless of the
 4 anti-steering restrictions.” *Id.* at 242:23–244:3.¹¹

5 Plaintiffs’ reliance on unproven theories on steering cannot erase real-world data showing
 6 that pass-through occurred in only 2% of SKUs when Google reduced service fees. As the
 7 Supreme Court has explained, when it comes to pass-through, “in the real economic world rather
 8 than an economist’s hypothetical model, the latter’s drastic simplifications generally must be
 9 abandoned.” *Illinois Brick*, 431 U.S. at 742 (cleaned up). Plaintiffs have no answer to real-world
 10 evidence showing that prices did not change with service fees. That evidence shows that pass-
 11 through is not universal, but depends on multiple factors that vary from app to app. The only way
 12 for Plaintiffs to account for those variables for each app would be thousands of app-by-app mini-
 13 trials that will overwhelm any common issues. Indeed, while the need for individualized proof to
 14 “identify *uninjured* class members” alone suffices to “render an adjudication unmanageable,”
 15 class-wide adjudication is all the more improper where the rarity of any real-world correlation
 16 between service fees and prices suggests that “individual trials” will be necessary to identify any
 17 fraction of class members who actually *were* injured by pass-through. *Olean*, 31 F.4th at 669
 18 n.13 (emphasis added).

19 **B. Individual Issues Predominate Because Not All Developers Would Be Subject**
 20 **To Lower Service Fees In The But-For World.**

21 Plaintiffs also cannot demonstrate predominance because they have no method of
 22 common proof that all or nearly all developers would be subject to lower service fees in the but-
 23 for world. If developers would not have paid reduced service fees in the but-for world, there
 24 would be no savings to pass through and no injury to consumers. *See, e.g., Flash Memory*, 2010

25 ¹¹ An app-by-app analysis would be necessary even if more “steering” would have resulted in
 26 more pass-through. As Plaintiffs note, “developers are allowed to steer” in numerous ways,
 27 including by charging lower prices on platforms with lower fees. Mot. at 22. One would expect
 28 all developers to do so if Dr. Singer were right that higher costs always result in higher prices.
 Singer Dep. at 224:8–24, 229:22–230:11; Burtis ¶ 169. In reality, developers of apps such as
 Minecraft, iHeartMedia, and Pandora Plus charge the same price on their website as on Google
 Play. Burtis ¶ 169. Dr. Singer’s examples of developers that do charge less on their website,
 Singer Reply ¶ 101, simply confirms the need for an app-by-app analysis.

1 WL 2332081, at *10–12 (indirect purchaser plaintiffs’ failure to show common impact on direct
 2 purchasers “alone” was sufficient to deny certification). Because 39% of consumers purchased
 3 from a single app, determining whether each app would have been subject to a lower service fee
 4 rate is necessary to determine whether each consumer was injured.

5 Google’s service fee rates differ across developers because different apps have different
 6 levels of popularity and importance. Google has responded to competition by reducing service
 7 fees for some apps but not others. For example, Google offers special programs that reduce
 8 service fees for certain types of audio, video, and reading apps that could sell digital content
 9 outside the app, and has negotiated bespoke deals with important game developers pursued by
 10 other app stores. Burtis ¶¶ 117–18. These apps accounted for █████ of total U.S. consumer spend.
 11 *Id.* ¶ 118. Google has also reduced service fees in other targeted ways, such as reducing fees for
 12 subscriptions. Plaintiffs provide no reason why Google would change its strategy in the but-for
 13 world and reduce service fees across the board to meet enhanced competition. *Id.* ¶ 113. That is
 14 not the strategy that Google’s competitors have used. The Amazon Appstore offered developers
 15 of 20 of the top 100 games in Japan lower service fees and incentives, and █████ has
 16 negotiated █████ *Id.* ¶¶ 119–20.

17 The fact that Google has reduced service fees to some developers shows that an app-by-
 18 app analysis is required to determine which apps’ service fees would be lower in the but-for
 19 world. “As a general matter, antitrust claims predicated on negotiated transactions, as opposed to
 20 purchases based on list prices, often entail consideration of individualized proof of impact.”
 21 *Flash Memory*, 2010 WL 2332081, at *8 (denying certification where a few direct purchasers
 22 comprised the bulk of sales and had “significant negotiating power”); *GPU*, 253 F.R.D. at 490–
 23 491 (denying certification where many direct purchasers had significant bargaining power).

24 To prove how Google’s targeted approach would affect each developer’s service fee rate
 25 in the but-for world, Plaintiffs would have to either marshal individualized proof for each
 26 developer accounting for their value to the Play Store and their ability to transact elsewhere,
 27 Burtis ¶¶ 232–36, or show that Google would abandon a targeted approach. The former would
 28 defeat predominance and the latter is missing from Plaintiffs’ motion. Dr. Singer simply uses

averages to calculate a “headline” rate for Google, and claims that Google’s individual negotiations would mechanically occur off of that rate. Singer ¶¶ 258–59; Mot. at 11, 21. Courts have rejected that approach as an improper attempt to mask individualized issues. *See Flash Memory*, 2010 WL 2332081, at *12 (predominance not satisfied where expert’s model failed to take into account “individual variations” and looked only “at an average price trend”).¹²

C. Plaintiffs’ Play Points Model Is Not Common Proof Of Impact.

In one paragraph, Plaintiffs posit an alternative theory of impact: consumers allegedly were injured not because they paid too much but because Google paid them too little. Without the challenged conduct, Plaintiffs say, more competition would have led Google to “increase[e] its Google Play Points loyalty program.” Mot. at 13. Plaintiffs still have no common method of “identify[ing] uninjured class members” because they cannot show which apps and consumers would have joined the Play Points program in the but-for world. *Olean*, 31 F.3d at 669 n.13.

██████████ of U.S. consumers enrolled in Play Points and ██████████ redeemed Play Points. Burtis Rep. ¶ 358; Singer Reply ¶ 98; Singer Dep. at 288:11–16, 289:17–23. The millions of consumers who did not enroll were not injured by any reduced Play Points offerings unless, in the but-for world, they would have signed up and redeemed Points. Plaintiffs have no method short of mini-trials to prove which consumers would have done so. Importantly, Dr. Singer has not “identified any model to determine which users would have signed up for [P]lay [P]oints in the but-for world,” Singer Dep. at 295:5–20, or that can determine which of the putative class members “would have signed up for [P]lay [P]oints and who would have used them.” *Id.* at 297:8–21; *see id.* at 296:6–19. When asked whether “every member of the putative class would have signed up for the [P]lay [P]oints program and used [P]lay [P]oints,” Dr. Singer said that was a “fair assumption.” *Id.* at 298:22–299:10. But assumptions are not common proof.

Dr. Singer claims that if Google had offered Play Points equivalent on average to about

¹² Plaintiffs argue that courts have accepted experts’ reliance on averages, Mot. at 23, but the experts in the cases they cite applied a regression model to actual data to model impact on consumer prices. *See D&M Farms v. Birdsong Corp.*, 2020 WL 7074140, at *8 (E.D. Va. 2020); *In re Static Random Access Memory (SRAM) Antitrust Litig.*, 264 F.R.D. 603, 613 (N.D. Cal. 2009). It is one thing to use a regression to show an average effect on prices as experts in these cases did. It is another to assume an average effect as Dr. Singer does in this case.

eight percent of a consumer’s transaction, then all members of the class would have signed up for them. *Id.* at 296:6–19, 297:8–21. This just assumes away the need to determine the amount of Play Points each consumer would have earned, and whether that amount would have motivated them to sign up. Different consumers might value the same amount of Play Points differently—just as, according to Dr. Singer, “[a] \$10 gift card for Chick-Fil-A” or “a jar of change accumulating in the closet might be worth more to some consumers than others.” Singer Reply at ¶ 99. Over 3.1 million class members (15%) spent less than \$5 on Play. Burtis Decl., Ex. C (Burtis Rev. Ex. 23). Dr. Singer has not even tried to show that points equal to 8.7% of that consumer spend—less than █████—would have been sufficient to motivate *all* of these millions of consumers to sign up for Play Points when only a fraction did so in the real world.¹³

D. Many Class Members May Be Worse Off In Plaintiffs’ But-For World.

A class also cannot be certified where many members of the putative class benefited from the challenged conduct such that plaintiffs’ but-for world would have created “winners and losers.” If a plaintiff cannot “account[] or control[] for the benefits that many class members receive from the exclusionary conduct on a class-wide basis,” then “the Court cannot conclude that Plaintiffs have shown that common evidence is available to show class-wide impact.” *Allied Orthopedic Appliances, Inc. v. Tyco Healthcare Grp. L.P.*, 247 F.R.D. 156, 169 (C.D. Cal. 2007).

Consumers have access to millions of apps that are completely free and can enjoy “freemium” apps without any upfront payment (or any payment at all). They pay nothing to download, for example, Facebook, Uber, Airbnb, banking apps, or government agency apps. Rather than charge for these apps, and many other free apps, Google primarily supports Play with service fees on IAP and subscriptions, which account for 99% of Play’s fees for the valuable services that Play provides. Burtis ¶ 57. According to Plaintiffs, however, in the but-for world, developers would pay none of this revenue because they would use their own billing systems. *Id.* ¶ 269; Singer Dep. at 309:4–310:7. In other words, Plaintiffs’ but-for world would put nearly all of Google’s revenue from Play “at risk.” Shah Decl., Ex. F (“Burtis Dep.”) at 307:6–17.

¹³ The 8.7% figure is also irrelevant because it reflects an estimate that Dr. Singer derived using “the sum of all promotions,” not just Play Points. Singer ¶ 253.

1 In that scenario, Google would have incentives to design its ecosystem differently, leaving
 2 some consumers who benefit from Google's current system worse off. Dr. Singer agrees that one
 3 "should assume that Google is a profit-maximizing firm" that will take lawful steps to earn some
 4 of the profits that it would lose in the but-for world. Singer Dep. at 300:15–302:21. That is why,
 5 as Dr. Burtis explains, Google employees have analyzed alternative Play models involving
 6 different fee structures, [REDACTED]
 7 [REDACTED]. Burtis ¶¶ 187–89, 201; *see*
 8 Feng Dep. at 353:4–355:24 (describing how, in response to complaints that Google did not charge
 9 free apps for distribution, Google considered alternative business models such as "[REDACTED]"
 10 [REDACTED]
 11 [REDACTED] Dr. Burtis also explains that, in the but-for world, consumers may lose access to
 12 valuable features. For example, in a world without existing Android security standards, security-
 13 conscious consumers would be worse off because they would face costs to keep their data and
 14 devices secure. Burtis ¶¶ 190–96. Even if the impact of these changes were small, they could
 15 cause net harm to consumers—such as the 15% of class members who spent less than \$5 during
 16 the class period and suffered (at most) \$0.75 in damages, or the over 50% of class members that
 17 spent less than \$50 and suffered (at most) \$7.60 in damages.¹⁴

18 In short, while Play has enabled millions of consumers to obtain safe and secure free apps,
 19 some consumers may have paid more and received less in Plaintiffs' but-for world. "The result is
 20 to shuffle the position of [consumers] in the but-for world in a manner that defies predictability
 21 with common evidence." *Allied Orthopedic*, 247 F.R.D. at 169; *see also Kottaras v. Whole*
 22 *Foods Market, Inc.*, 281 F.R.D. 16, 23–24 (D.D.C. 2012) (denying certification when
 23 individualized inquiry needed to determine "net injury"); *Digital Music*, 321 F.R.D. at 95 (same).

24 Dr. Singer claims Google would not switch business models because the availability of
 25 free apps benefits the Android ecosystem in ways Google would not sacrifice if it faced more
 26 competition. Singer Reply ¶ 54. Setting aside this concession that Google's current model
 27

28 ¹⁴ Maximum alleged damages in this example is the difference between a 30% fee and a 14.8% fee and assumes (contrary to fact) 100% pass through. E.g., $(\$5 \times 0.3) - (\$5 \times 0.148) = \$0.75$.

benefits consumers and developers, internal Google documents show that [REDACTED] could *increase* the quality of Play by reducing the number of low-quality apps. Burtis ¶ 269 n.321. Moreover, the State AGs allege that Google should charge service fees to all developers, including those that pay no such fees today, Plaintiff States' Complaint, ECF No. 188, ¶ 189, and Plaintiffs' counsel are seeking fees for the success of those claims. *See* Section II, below.

Dr. Singer also notes that while Google considered these alternative models, it never adopted them. Singer Reply ¶ 54. But Plaintiffs are attacking Google's current business model. Google believes its business model is lawful and the best one for consumers and developers, so it is not surprising that Google has not adopted an alternative. Further, the question here is whether Google would have adopted an alternative if it was *forbidden* from pursuing its current strategy or charging a service fee on IAPs that go through another billing system. Google's internal documents confirm that it would actively consider alternatives. Burtis ¶ 197.¹⁵

Plaintiffs' inability to "account[] or control[] for the benefits that many class members receive from the exclusionary conduct on a class-wide basis" precludes a finding that "common evidence is available to show class-wide impact." *Allied Orthopedic*, 247 F.R.D. at 169. For these same reasons, there are "fundamental conflicts of interest . . . among the proposed class members," making certification "inappropriate." *Id.* at 177.

E. Plaintiffs Have No Common Method Of Calculating Damages.

The proposed class also cannot be certified because "the complexity of damages calculations . . . defeat[s] predominance." *Olean*, 31 F.4th at 681. While individualized damages do not alone defeat certification, *Leyva v. Medline Indus. Inc.*, 716 F.3d 510, 514 (9th Cir. 2013), Plaintiffs' damages model must establish that "damages are capable of measurement on a classwide basis." *Comcast Corp. v. Behrend*, 569 U.S. 27, 34 (2013). It does not. Because Plaintiffs' damages are based on allegedly high service fees that are passed through to consumers,

¹⁵ Plaintiffs also insist that Google would not change its business model because it would be profitable with the but-for service fee rate. Mot. at 12; Singer Reply ¶ 50. But neither Plaintiffs nor Dr. Singer explain why a developer would choose to use Google Play's billing service and pay [REDACTED] if, as Plaintiffs claim, the developer could use its own billing system and pay Google nothing. Nor do Plaintiffs address the fact that only a small percentage of developers would need to switch to put nearly all of Google's revenue "at risk." Burtis Dep. at 308:9–24.

Mot. at 13, Plaintiffs have no common method of calculating class-wide damages for the same reasons they lack common proof of impact. *See* pp. 8–22, above; Burtis ¶ 100 n.110. Plaintiffs cannot show that savings to consumers would have been “fairly uniform” in the but-for world, *Earl v. Boeing Co.*, 21 F.4th 895, 899 (5th Cir. 2021); instead, this Court will need to conduct “individualized mini-trials to determine each class member’s damage award,” *Olean*, 31 F.4th at 682 n.31. Indeed, what Dr. Singer calls the standard economic model shows that variations in developers’ marginal costs can result in dramatic variations in damages calculations.¹⁶

II. PLAINTIFFS’ COUNSEL ARE NOT ADEQUATE BECAUSE THEIR JOINT PROSECUTION AGREEMENT CREATES CONFLICTS.

Under Rule 23(a)(4), class counsel are inadequate if they “have any conflicts of interest with other class members.” *Hanlon v. Chrysler Corp.*, 150 F.3d 1011, 1020 (9th Cir. 1998). This standard prohibits “even the appearance of divided loyalties of counsel.” *Kayes v. Pacific Lumber Co.*, 51 F.3d 1449, 1465 (9th Cir. 1995) (cleaned up). Here, Plaintiffs’ counsel have direct conflicts with the proposed class because of their Joint Prosecution Agreement (“JPA”) with the State AGs. Although Plaintiffs’ counsel pled a nationwide class, they now seek to represent only consumers who are *not* residents of the party states in *State of Utah et al. v. Google LLC, et al.* Yet under the JPA, Plaintiffs’ counsel continue to have a financial interest in the claims of consumers they no longer seek to represent because they can claim attorney’s fees out of funds recovered by the State AGs. This arrangement creates improper incentives and dual loyalties that conflict with counsel’s duty to the proposed class.

First, the JPA gives Plaintiffs’ counsel financial interests that do not depend on a successful result for the class. Under the JPA, Plaintiffs’ counsel can seek fees from “any recovery created by resolution of” the State AG claims for work performed while they “still represent[] clients with live claims in the case.” ECF No.279-3, Ex. 1 (JPA), p. 3. Thus, unlike a traditional contingency in which counsel’s fees depend on their client’s recovery, under the JPA, counsel’s ability to keep earning fees depends on the *absence* of a settlement providing a

¹⁶ The standard model Dr. Singer identified in his report assumes a developer’s total marginal costs are equal to marginal costs divided by (1 – service fee). Singer ¶ 225; Singer Dep. at 106:11–108:16. Each developer’s marginal costs therefore directly affect the calculation of the upper limit on pass-through damages.

1 recovery for the proposed class. This gives Plaintiffs’ counsel an incentive to keep the class
 2 claims alive as long as possible, warping counsel’s evaluation of whether a settlement is in the
 3 class’s best interests. The JPA therefore impermissibly “disjoin[s] the contingency financial
 4 interests of the contracting representatives from the class.” *Rodriguez v. W. Publ’g Corp.*, 563
 5 F.3d 948, 959 (9th Cir. 2009).

6 *Second*, the JPA gives Plaintiffs’ counsel dual loyalties to the narrowed class and the four
 7 named plaintiffs who do not reside in states within the narrowed class definition.¹⁷ Counsel
 8 “cannot simultaneously represent a class and prosecute either individual or class claims against
 9 the same defendants in a different proceeding, even if there is partial overlap among the plaintiffs
 10 or class members in the cases.” *Lou v. Ma Labs., Inc.*, 2014 WL 68605, at *2 (N.D. Cal. 2014)
 11 (finding counsel inadequate and denying class certification) (quoting 1 McLaughlin on Class
 12 Actions 4:39 (10th ed.)). This conflict precludes certification because a class “deserves to be
 13 championed by its counsel unencumbered by their duties to other clients.” *Id.*

14 Plaintiffs have not identified any precedent approving an agreement giving class counsel
 15 an interest in funds recovered by consumers who are represented, and whose claims are being
 16 litigated, exclusively by State AGs. *Compare In re Dynamic Random Access Memory (DRAM)*
 17 *Antitrust Litig.*, 2013 WL 12387371, at *7 (N.D. Cal. 2013), *R. & R. adopted*, 2014 WL
 18 12879521 (splitting common fund fee award among class counsel and State AGs who represented
 19 the same consumers). To the contrary, absent a gross imbalance in contributions to the litigation,
 20 “if the third parties hire their own attorneys and appear in the litigation, the original claimant
 21 cannot shift to them his attorney’s fees.” *Vincent v. Hughes Air W., Inc.*, 557 F.2d 759, 770 (9th
 22 Cir. 1977); *see United States v. Tobias*, 935 F.2d 666, 668–69 (4th Cir. 1991) (similar). The JPA
 23 creates conflicts that make Plaintiffs’ counsel inadequate to represent the class.

24 **III. THE COURT CANNOT CERTIFY AN INJUNCTIVE RELIEF CLASS.**

25 Plaintiffs’ three perfunctory paragraphs cannot establish that “final injunctive relief or
 26

27 ¹⁷ Plaintiffs Carr (Washington resident), Egerter (California resident), Palmer (Massachusetts
 28 resident); and Moglia (New York resident) cannot serve as class representatives because they are
 not in the proposed class. *Orr v. Shicker*, 953 F.3d 490, 499 (7th Cir. 2020).

1 corresponding declaratory relief is appropriate respecting the class as a whole.” Fed. R. Civ. P.
 2 23(b)(2). Plaintiffs’ proposed injunctive relief class includes any person in 17 states or territories
 3 with an Android device “capable of accessing the Google Play Store”—regardless of whether
 4 they have made any purchases through Play. Mot. at i. The proposed injunctive relief class thus
 5 includes consumers who have not paid a cent for digital content in apps installed from Play.

6 *First*, Plaintiffs have not “described the general contours of an injunction that would
 7 provide relief to the whole class.” *B.K.*, 922 F.3d at 972. Now-Circuit Judge Koh’s decision
 8 denying certification of a 23(b)(2) class in *Grace v. Apple, Inc.*, 328 F.R.D. 320 (N.D. Cal. 2018),
 9 is instructive. There, “the only statement approaching a legal argument” in plaintiffs’ motion was
 10 that “[c]ertification under Rule 23(b)(2) is proper because Apple’s wrongful conduct affected all
 11 Class members in the same way.” *Id.* at 349. Here, the only sentence in Plaintiffs’ motion
 12 containing an argument for an injunctive relief class is that “Google’s conduct at issue is not
 13 specific to any consumer.” Mot. at 24–25. In *Grace*, the plaintiffs made a “boilerplate request”
 14 for “injunctive relief to remedy Apple’s continuing wrongful conduct.” 328 F.R.D. at 349–50.
 15 Here, Plaintiffs’ motion says nothing about their requested injunction at all, and their complaint
 16 prays vaguely for an order “enjoining Defendants from monopolizing the Android Application
 17 Distribution Market” and “engaging in anticompetitive conduct.” Plaintiffs’ own authority holds
 18 that such conclusory treatment cannot warrant certifying a 23(b)(2) class. *See Suboxone*, 421 F.
 19 Supp. 3d at 70 (denying certification where plaintiffs “relegated their request for 23(b)(2)
 20 certification to a mere two paragraphs in their Motion and two more brief paragraphs in their
 21 reply brief”); *see also Williams v. Apple, Inc.*, 338 F.R.D. 629, 657 (N.D. Cal. 2021) (same given
 22 “Plaintiffs’ failure to meaningfully analyze the injunctive class in their motion”).

23 For the same reasons, Plaintiffs have failed to demonstrate that their request for injunctive
 24 relief predominates over the monetary relief sought, as required under Rule 23(b)(2). *See, e.g.,*
 25 *Ellis*, 657 F.3d at 986 (“Class certification under Rule 23(b)(2) is appropriate only where the
 26 primary relief sought is declaratory or injunctive.” (quotation marks omitted)); *In re Paxil Litig.*,
 27 218 F.R.D. 242, 247 (C.D. Cal. 2003) (denying certification under 23(b)(2) where “the vague
 28 description of the nature of the actions sought to be enjoined suggests that the value of the

injunctive relief requested is dwarfed by the value of the monetary damages requested”).

Second, Plaintiffs have not shown that consumers who never paid for an app or IAP using Play will be injured absent an injunction. All class members “*must* stand to benefit” from an injunction, and a Rule 23(b)(2) class cannot be certified “when injunctive relief is not proper for every class member.” *Berni v. Barilla S.p.A.*, 964 F.3d 141, 147 n.28 & 148 (2d Cir. 2020). Again, Plaintiffs’ own authority is in accord. *See Suboxone*, 421 F. Supp. 3d at 70 (denying certification of 23(b)(2) class because “the proposed injunctive relief in the form of ‘corrective disclosures’ will not benefit patients who no longer take Suboxone film”). Plaintiffs’ inclusion of consumers who have never purchased any app or made any IAP distinguishes this case from *In re NCAA Student-Athlete Name & Likeness Licensing Litig.*, 2013 WL 5979327 (N.D. Cal. 2013), where “all class members . . . would potentially be subject to ongoing antitrust harms resulting from the continued unauthorized use of their names, images, and likenesses.” *Id.* at *7.

Third, the class representatives cannot adequately represent class members who have paid nothing for apps or IAP and would be harmed by an injunction requiring Google to suspend features of the Android and Play business model that has benefited them enormously at no cost. Courts regularly deny certification of injunctive relief classes that include members who would be harmed by the requested injunction.¹⁸ That rule prevents injunctive relief here because an injunction eliminating Google’s challenged conduct could harm consumers who have not paid for apps or made IAPs by resulting in charges for free apps or changes in features of Play they value. Plaintiffs’ request to certify a class that would be harmed by the relief they request underscores that this case is not appropriate for class treatment.

CONCLUSION

For the foregoing reasons, the Court should deny Plaintiffs’ motion for class certification.

¹⁸ *See, e.g., Allen v. Dairy Farmers of Am., Inc.*, 279 F.R.D. 257, 274 (D. Vt. 2011) (denying certification where requested injunction “will materially transform the manner in which defendants do business,” resulting in “harm which will not be shared by each of the proposed class representatives”); *Digital Music*, 321 F.R.D. at 91 (denying certification where at least some class members would be harmed if injunction were granted); *Pickett v. Iowa Beef Processors*, 209 F.3d 1276, 1280 (11th Cir. 2000) (class improper “when it consists of members who benefit from the same acts alleged to be harmful to other members”).

Dated: June 23, 2022

By: /s/ Sujal J. Shah

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Litigation; In re Google Play Developer
Antitrust Litigation; Epic Games, Inc. in Epic
Games, Inc. v. Google LLC; State of Utah et
al. v. Google LLC et al.*

Certificate Pursuant to Local Rule 5-1(h)(3)

I, Sujal J. Shah, am the ECF User whose credentials are being used to file DEFENDANTS' OPPOSITION TO PLAINTIFFS' CLASS CERTIFICATION MOTION. In compliance with Local Rule 5-1(h)(3), I hereby attest that counsel for Defendants have concurred in this filing.

Dated: June 23, 2022

By /s/ Sujal J. Shah
Sujal J. Shah

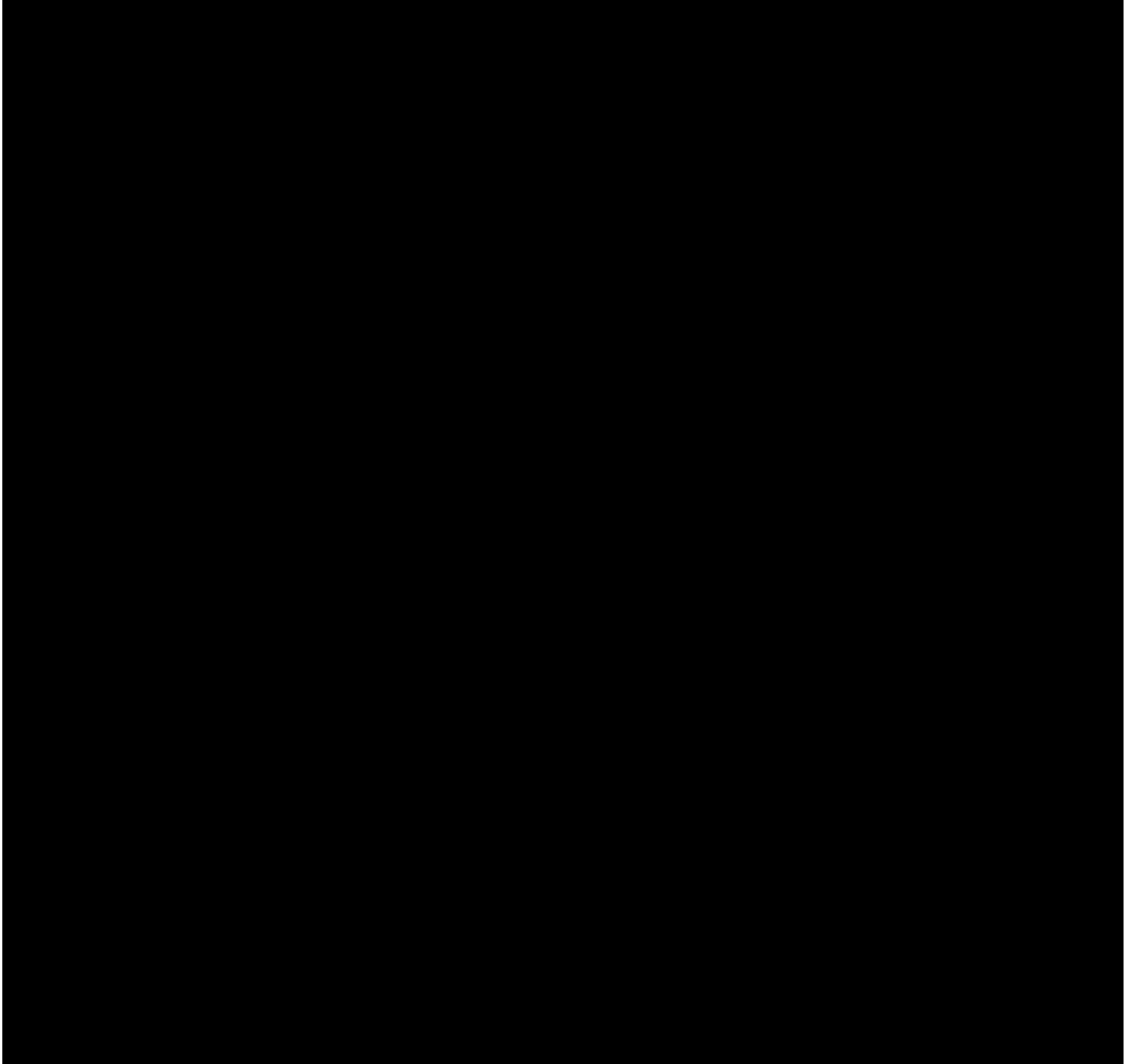
REDACTED VERSION

Exhibit A46 to C. Cramer Declaration

EXHIBIT C

EQP H~~K~~F GP V~~K~~CN/H~~K~~NGF WPF GT UGCN

Revised Exhibit 23 of Burtis Report



REDACTED VERSION

Exhibit A47 to C. Cramer Declaration

EXHIBIT G

EQP H~~K~~F GP V~~K~~CN/H~~K~~NGF WPF GT UGCN

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN FRANCISCO DIVISION

4 -----X
5 IN RE GOOGLE PLAY STORE
6 ANTITRUST LITIGATION
7 Case No. 3:21-md-02981-JD

8 THIS DOCUMENT RELATES TO:
9 Epic Games Inc. v. Google LLC, et al.,
10 Case No. 3:20-cv-05671-JD

11 In Re Google Play Consumer
12 Antitrust Litigation
13 Case No. 3:20-cv-05671-JD

14 In Re Google Play Developer
15 Antitrust Litigation,
16 Case No: 3:20-cv-05792-JD

17 State of Utah, et al., v.
18 Google LLC, et al.,
19 Case No: 3:21-cv-05227-JD

20 -----X

21 VIDEOTAPE DEPOSITION
22 HAL SINGER, PH.D.
23 Thursday, May 12, 2022
24 9:07 a.m. (EST)

25 Reported by:
Ryan K. Black, RPR, CLR, Notary Public

Thursday, May 12, 2022

Video Deposition of HAL SINGER, PH.D.,
taken at the Law Offices of Munger, Tolles &
Olson, LLP, 601 Massachusetts Avenue NW
Washington, DC, beginning at 9:07 a.m.,
before Ryan K. Black, a Registered
Professional Reporter, Certified Livenote
Reporter and Notary Public and for the
District of Columbia.

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Yajing Jiang, Ph.D - Charles River Associates

Kevin Caves, Ph.D - Econ One

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1 THE VIDEOGRAPHER: Good morning. We are
2 on the record at 9:07 a.m. on May 12, 2022. This
3 is the video-recorded deposition of Hal Singer
4 taken in the matter of In re: Google Play Store
5 Antitrust Litigation, filed in the United States
6 District Court, Northern District of California,
7 San Francisco Division, Case No.
8 3:21-MD-02981-JD.

9 My name is Emmanuel Pezoa, from the firm
10 Veritext Legal Solutions. The court reporter is
11 Ryan Black, from the firm Veritext Legal
12 Solutions.

13 Will the court re -- court reporter
14 please swear in the witness?

15 * * *

16 Whereupon --

17 HAL JASON SINGER, PH.D.,
18 called to testify, having been first duly sworn
19 or affirmed, was examined and testified as
20 follows:

21 * * *

22 THE REPORTER: And, Counsel, if you want
23 to state your appearances for the record, that
24 would be great.

25 MR. RAPHAEL: Sure.

1 Justin Raphael, Munger Tolles & Olson,
2 for the defendants.

3 MS. GIULIANELLI: Karma Giulianelli,
4 from Bartlit Beck, for the consumer class.

5 MS. JIANG: Yajing Jiang from Charles
6 River Associates.

7 MR. RAPHAEL: Is there anyone on the
8 line who wants to introduce themselves?

9 MS. ERNST: This is Amy Ernst. I'm here
10 with Hausfeld for the plaintiff developers.

11 THE VIDEOGRAPHER: Thank you. You may
12 proceed.

13 MR. ZEPP: Eric Zepp here, from Cravath
14 Swaine & Moore, on behalf of Epic Games.

15 MR. CAVES: I'm Kevin Caves, with Econ
16 One on behalf of the Commercial developers.

17 EXAMINATION

18 BY MR. RAPHAEL:

19 Q. All right. Dr. Singer, will you just
20 state your name for the record?

21 A. Hal Jason Singer.

22 Q. And, Dr. Singer, you've been deposed
23 many times; is that right?

24 A. Yes.

25 Q. How many times would you say you've been

1 developers are passing through savings in order
2 to induce customers to switch to the -- and
3 download the app from the developer's website.

4 So it's not just theory. I mean,
5 obviously, theory is on my side; but I think we
6 have -- we have good evidence to bear as well.

7 Q. But you would agree that standard
8 economic theory tells us that developers would
9 have incentives to respond to lower service fees
10 by reducing their prices?

11 A. Correct.

12 Q. Okay. And standard economics also
13 tells us that competition drives firms to make
14 competitive investments in product quality,
15 right?

16 A. Yes. I believe that, as I said, that
17 in -- in a but-for world with lower take rates
18 and this new-found cash flow that the developers
19 would enjoy, not all of it is going to go into
20 the pockets of the owners. But -- but some of
21 that will be reinvested and -- and -- and in
22 services and features that -- that make the app a
23 better experience for the user.

24 Q. Right. So standard economics would give
25 developers an incentive to respond to lower

1 service fees by reducing prices and improving
2 quality?

3 A. Correct.

4 Q. Now, in your reports, do you have any
5 model that will tell the Court or the jury which
6 developer will follow the incentives to improve
7 quality and which developer will follow the
8 incentives to reduce price?

9 A. Well, I think all developers will reduce
10 price. My opinion on quality is that it would
11 happen at a -- at a general level, but that is
12 not my proof of impact. My proof of impact turns
13 on the price response.

14 Q. Have you done any analysis to determine
15 whether any developer would improve the -- the
16 quality of their app in a world with reduced
17 service fees?

18 A. I don't think I've done analysis.
19 I'm -- I'm aware of some testimony, and we'd have
20 to go into my footnotes of developers testifying
21 that they would do something to that effect. But
22 I -- that's more me just citing a developer than
23 -- you know, than doing -- I took your question
24 to mean original analysis, like trying to model
25 the quality dimension. I don't do that.

1 predicts.

2 A. Correct.

3 Q. Okay. And you're aware, aren't you,
4 that developers choose the category for their app
5 when they list it in Google Play?

6 A. Yes.

7 Q. Now, in your reports, have you
8 calculated or estimated the marginal cost of
9 supplying an additional app subscription or
10 in-app purchaser for any developer?

11 A. I haven't estimated the marginal cost,
12 but I have cited record evidence and economic
13 literature establishing that they do, in fact,
14 incur marginal costs. And I -- I also have the
15 opinion that processing payments are marginal
16 cost, and I also have the opinion that the take
17 rate is a marginal cost. So I --

18 Q. Okay.

19 A. -- leave it at that.

20 Q. Okay. So in your reports, though, you
21 haven't calculated or estimated the marginal cost
22 of supplying an additional app subscription or
23 in-app purchase for any developer.

24 A. No. And the models don't call for that.
25 The -- at least in the short run, all the models

1 require is that they face a positive marginal
2 cost, and I'm confident they do.

3 Q. All right. So the pass-through formula
4 you've used in your reports doesn't actually
5 depend on what the marginal cost of the developer
6 is.

7 MS. GIULIANELLI: Objection.

8 THE WITNESS: That's fair.

9 Do you want to -- I think we're an hour
10 and a half in?

11 MS. GIULIANELLI: You want to --

12 MR. RAPHAEL: Happy to take a break.

13 MS. GIULIANELLI: -- a break?

14 THE WITNESS: Okay. Yes.

15 THE VIDEOGRAPHER: Please stand by.

16 We're now off the record. The time is
17 10:40 a.m.

18 (Recess taken.)

19 THE VIDEOGRAPHER: We're now on the
20 record. The time is 10:50 a.m.

21 BY MR. RAPHAEL:

22 Q. Dr. Singer, have you put forth any
23 method in your reports to determine what each
24 developer's marginal costs are, other than
25 service fees?

1 A. Well, other than the service fees
2 and the processing fees, I haven't estimated
3 precisely the marginal costs. But I have studied
4 the issue of whether they do incur other marginal
5 costs, and I've come to the conclusion that they
6 do; and I cite record evidence in economics
7 articles.

8 Q. And so economics articles would be a
9 good source to determine what the marginal costs
10 for the developers are other than the service
11 fees and transaction fees?

12 A. For identifying the categories of
13 marginal costs but not to -- not to estimate
14 precisely what -- what it is in, say, percentage
15 terms.

16 Q. Okay. Now, your opinion is that
17 acquiring an app -- strike that.

18 Your opinion is that downloading an
19 app and making in-app purchases are separate
20 transactions involving separate products.

21 A. I wouldn't quite put it that way. I
22 would say that the -- the services that are being
23 offered in the in-app for -- in support of in-app
24 transactions are different. It's a different
25 suite of services than the services being offered

1 consumer is complete?

2 A. Certainly not the sales costs.
3 Certainly not the processing fee. Certainly not
4 the take rate.

5 Q. How about the other costs that you've
6 listed here in your report?

7 A. It's possible that some of those other
8 marginal costs identified by Ghose and Han would
9 occur subsequent to -- to a particular
10 transaction, --

11 Q. Okay.

12 A. -- but could still be considered as
13 variable costs in the sense that they rise
14 with -- with output.

15 Q. Okay. Could the marginal cost to a
16 developer of supplying an additional in-app
17 purchase vary from developer to developer?

18 A. Sure.

19 Q. And could some developers have zero
20 marginal costs for an in-app purchase?

21 A. No.

22 Q. Could you go to Page 153 of your report?

23 A. You must mean my initial report
24 because --

25 Q. Correct.

1 A. -- the reply is not -- okay.

2 Page 153?

3 Q. Yes, sir.

4 A. Okay.

5 Q. Do you see there second from the top
6 there's an article by Avi Goldfarb and Catherine
7 Tucker called "Digital Economics"?

8 A. Yes.

9 Q. So that's an article that you've relied
10 on in your report?

11 A. Yes.

12 Q. Are you familiar with that article?

13 A. In part, yes.

14 Q. Okay. Do you know if that article says
15 anything about what marginal costs might be for a
16 digital good?

17 A. No. But if it were just a digital good,
18 I think that might be too broad of a category.
19 We're talking about in-app transactions here.

20 MR. RAPHAEL: I'm going to mark this as
21 Exhibit 335.

22 (Exhibit No. 335, an article titled
23 Digital Economics by Avi Goldfarb and Catherine
24 Tucker, was introduced electronically.)

25 THE REPORTER: Here you go, sir.

1 THE WITNESS: Thanks.

2 BY MR. RAPHAEL:

3 Q. Do you see Exhibit 335, Dr. Singer?

4 A. I do.

5 Q. And what is it?

6 A. It -- it appears to be the article that
7 I cited.

8 Q. That's the "Digital Economics" article
9 by Tucker and Goldfarb?

10 A. Yes.

11 Q. And -- and could you go to Page 12 of
12 the article?

13 A. If you'd let me just -- one second. I'd
14 -- I'd like to just read the abstract quickly.

15 Q. Would you go to Page 12, please?

16 A. Hold on one second.

17 Okay. Page 12.

18 Okay.

19 Q. Do you see at -- further down, say,
20 two-thirds of the way down in the left column,
21 there's a header that says, "The replication cost
22 of digital goods is zero"?

23 A. Yes.

24 Q. So this article that you relied on in
25 your report says that "The replication costs of

1 digital goods is zero," correct?

2 A. Correct.

3 Q. Now, are you familiar with V-Bucks?

4 A. Oh. Can I put this to the side?

5 Q. For now, yes.

6 A. Yeah.

7 And I would just note for the record
8 that replication costs and marginal costs are not
9 the same.

10 Q. Well, how are they different?

11 A. Oh. What -- what Goldfarb is not taking
12 into consideration here is that to sell the extra
13 unit you have to pay a processing fee. That's a
14 marginal cost.

15 So it's true that to create the next
16 sword -- the 150th sword doesn't cost any more to
17 replicate that sword, but that doesn't mean there
18 aren't any marginal costs incurred in the
19 transaction.

20 Q. Understood.

21 All right. Could some developers have
22 negative marginal costs for in-app purchases?

23 A. It's hard to -- to fathom that.

24 Q. What if a developer generates
25 advertising revenue as the result of an in-app

1 being reflected in the prices of apps in the
2 transaction data.

3 Q. Right. And your opinion is that
4 Google's service fees, to the extent that they
5 are supercompetitive, is equivalent to an
6 increase in the developer's marginal cost.

7 A. It can be understood that way, yes.

8 Q. Right. And in your report, you've
9 modeled the proper economic way to calculate how
10 a profit-maximizing developer would set prices
11 based on marginal costs.

12 A. I have. And --

13 Q. Right.

14 A. -- and, as you know, it depends on
15 the -- the nature of the demand and the demand
16 specification that you assume, right? Each
17 demand specification you assume is going to apply
18 at different pass-through rates.

19 Q. Right. So could you go to Page 104 of
20 your report, your opening report, please?

21 A. Sure.

22 Q. And you'll see this is a continuation of
23 the Paragraph 225 from the previous page.

24 And you've got a formula there that has
25 "P minus C star divided by P equals one divided

1 by E sub D."

2 Do you see that?

3 A. Yes. That's the classic Lerner markup.

4 Q. Right. So that's -- that's the proper
5 economic model for how a profit maximizing
6 developer would set prices based on marginal
7 costs, right?

8 A. That model describes the markup over
9 marginal cost as the function of the elasticity
10 of demand faced by the developer.

11 Q. Right. And -- and this model on Page
12 104 of your opening report, that -- that's --

13 A. So --

14 Q. -- the correct economic mod -- economic
15 way to model how the change in marginal costs
16 will affect the price that the developer charges.

17 A. It's the -- it's the way to think
18 about it at -- at a very, very high level of
19 abstraction. But, as you know, to actually
20 estimate the pass-through rate here, I have to
21 make an assumption about the demands curve and --
22 and -- and the precise nature of demand that a --
23 the developer faces, right?

24 Once you --

25 Q. Understood.

1 A. -- make a -- once you make that
2 decision, you get these pass-through rules,
3 right? And the pass-through rules -- whether you
4 go linear or logit or -- or constant elasticity
5 -- are going to express pass-through as a
6 function of things that do not include the
7 marginal cost.

8 Q. Understood. But this formula on Page
9 104 of your report is the correct economic way to
10 model the relationship between the developer's
11 price and the marginal cost in general?

12 A. Well, I just want to put that caveat in
13 there. It's the -- it's the -- definitely the
14 way to think about it and why it's in my
15 preamble, right?

16 But when I go to model the precise
17 amount of pass-through, I have to make an
18 assumption about what kind of demand the
19 developer faces, right? And that -- that puts
20 me to a -- takes me to a pass-through rule that
21 isn't necessarily going to be denominated in
22 terms of costs.

23 Q. Understood. So -- but -- but this mod
24 -- this economic model you've described in Page
25 104 of your report, that's generally accepted in

1 economics.

2 A. Yes.

3 Q. Now, if you just look at the cost term
4 there, C star, and the -- the C star in that
5 formula that you have on Page 104 of your report
6 is equal to C divided by one minus T, right?

7 A. Correct.

8 Q. And -- and in that -- in that cost term
9 I just described, T is the service fee rate?

10 A. Correct.

11 Q. And C is the developer's per-unit
12 marginal cost other than the service fee?

13 A. Correct. Processing and the like, yes.
14 Any other --

15 Q. Okay.

16 A. Any other types of marginal costs.

17 Q. Okay. And so one input into the
18 generally accepted economic model of how the
19 profit-maximizing developer would set pri --
20 prices is the marginal costs other than the
21 service fee.

22 A. For short-run profit maximization, the
23 answer is, yes, that this model, at this high
24 level of ab -- of abstraction, is a function of
25 the marginal cost.

1 Q. Right. And in terms of how the price is
2 a function of mar -- of --of -- of marginal cost,
3 the -- the -- the formula you've got here on Page
4 104, in that formula, the effect of a change in
5 the service fee -- let me -- let me put it
6 differently.

7 The formula you've got on Page 104, the
8 effect on prices will be -- as a result of a
9 change in the service fee will be proportional to
10 the marginal costs other than the service fee.

11 A. In -- for short-run profit maximization,
12 yes. For -- for long-run profit maximization,
13 this is not -- this is not the -- the way that
14 you'd get to the effect on price.

15 Q. Okay. Now, -- so let me just ask,
16 looking at this cost term here, C -- C star, if C
17 in that formula, which is the marginal cost other
18 than the service fee, if that's zero, then the
19 service fee rate will not have any effect on the
20 ultimate price charged according to this model,
21 correct?

22 A. Let me just say this: It -- it's --
23 it's never zero in the real world. But -- but if
24 you want me to ask -- answer the hypothetical,
25 counterfactually, if we had -- if we had a zero

1 marginal cost, then by this model, and this model
2 alone, then in the short run, prices would not
3 adjust to the take rate.

4 As I explain in my report, there's all
5 sorts of reasons why we would still, even in that
6 extreme and counterfactual assumption, would
7 expect prices to change with the change in the
8 take rate, including from steering, including
9 from having to cover all costs in the long
10 run, --

11 Q. Okay.

12 A. -- including from sticky prices.

13 Q. Okay. Now, let me just ask again,
14 hypothetically, if that term C, which are the
15 marginal costs other than the service fee rate
16 in your formula on Page 104, if that term is
17 negative, then a reduction in the service fee
18 rate will actually lead to an increase in the
19 price that the developer would charge.

20 A. I haven't done that one yet, but I
21 think you've got the -- the sign correct. If you
22 multiply, in that example, 1.43 by a negative
23 cost, I think that there -- there would be a
24 negative relationship in the short run for this
25 equation.

1 period.

2 BY MR. RAPHAEL:

3 Q. But the pass-through formula you have
4 would predict changes in the pass-through rate
5 from week to week or month to month if the share
6 changes. Fair?

7 A. If one were so inclined to measure it on
8 -- on a monthly or nanosecond basis, yes, you
9 could get very strange results.

10 Q. Okay. Could the formula you've got
11 here, the "M minus Q sub J divided by M," could
12 that be used to calculate pass-through rates in
13 any case where you know the unit market share of
14 an intermediary alleged to have passed on an
15 overcharge?

16 A. I -- I -- I'd be reluctant to say that
17 the logit model could be applied to any case.
18 I'd want to confirm, first, as I did here, that
19 the logit model does a good job explaining the
20 relationship between prices and shares, as it
21 does here.

22 So I think you need some empirical
23 foundation before applying the logit model.
24 I think that would be a good -- good practice.

25 Q. Okay. Have you used the formula that

1 you used to calculate pass-through in this case
2 to calculate pass-through in any other case?

3 A. I do not believe I have. In other
4 cases, what I'm typically doing is regressing
5 retail price changes on wholesale price changes.

6 Q. Okay.

7 A. And that -- that's just not available
8 here.

9 Q. All right. To your knowledge, has
10 any economist used the formula you've used to
11 calculate pass-through in this case to calculate
12 pass-through in some other case?

13 A. I -- I don't -- I don't know enough -- I
14 can't follow how pass-through is calculated in
15 every antitrust case. I can tell you that the
16 logit assumption is one of the most common
17 assumptions that's used in antitrust cases there
18 is.

19 Q. But --

20 A. All right?

21 Q. But you're not aware of this formula
22 being used to calculate pass-through in another
23 case.

24 A. Oh. Pass-through? Well, the formula
25 is used to calculate price effects from, say,

1 has imposed throughout the class period.

2 This is why their examples are so
3 tortured. They're looking at these slight little
4 variations that either barely applied to an app
5 or where prices couldn't change because of Google
6 restriction. So I -- I did everything that I
7 could possible. I'm telling you that the most
8 comprehensive thing that -- that relates would be
9 the relationship between ad valorem sales taxes
10 at -- at the state level and prices, which do
11 -- are -- there's a tight relationship between
12 those two, right?

13 Q. Right. But the analysis of ad valorem
14 sales taxes doesn't use actual data regarding
15 developers' service fees and prices in the actual
16 world, correct?

17 A. That is correct.

18 Q. Okay. And so you haven't done any
19 analysis -- using actual data on prices and
20 service fees for the entire set of developers
21 that's at issue in this case, you haven't done
22 any comprehensive analysis regarding the
23 relationship between those things, correct?

24 A. I told you I could not do it given the
25 nature of the lack of variation --

1 Q. And because --

2 A. -- in Google's --

3 Q. -- you couldn't --

4 A. Almost every transaction.

5 MS. GIULIANELLI: Hey, hey. Let --

6 let --

7 THE WITNESS: Almost every transaction
8 is occurring at 30 percent. You -- you need
9 variation in the treatment variable in order to
10 tease out the relationship. And if Google
11 doesn't do it because of its restraints
12 preventing competition, I can't -- I can't run a
13 test of what you're asking for.

14 BY MR. RAPHAEL:

15 Q. Right. And because you feel like you
16 couldn't do it, you didn't do it?

17 A. Correct.

18 Q. Okay. Now, the Miller -- let's go back
19 to the exhibit, I think it was 336, which was the
20 Miller article?

21 A. Yes.

22 Q. Now, if you'll go to the top of Page
23 452, we were talking earlier about Expression 2
24 which refers to the per-unit tax. Do you recall
25 that?

1 in the Staples and Office Depot case, that paper
2 clips and a ruler aren't necessarily substitutes;
3 but if the people generally tend to buy those
4 things from the same place, they can belong in
5 the same product market.

6 Q. So -- but -- but it's not your opinion
7 that all apps in each Google Play app category
8 are substitutes.

9 A. I just gave an example of Excel and Word
10 as being more -- more of complements, right? But
11 -- but when you think about the -- the cat -- the
12 productivity suite that Google is offering, that
13 -- that's clearly a substitute to what -- what
14 Microsoft is offering in its productivity suite.

15 Q. Right. So some of the apps in each
16 Google Play category could be complements,
17 correct?

18 A. They could be.

19 Q. And some could be substitutes.

20 A. They could be, yes.

21 Q. Right. And you haven't put forth a
22 model in your report to determine which apps in
23 each category are complements and which are
24 substitutes?

25 A. No. And it's not necessary to get the

1 Q. Let me -- let me ask a different
2 question. You haven't calculated what those
3 switching costs are.

4 A. I haven't calculated it, no.

5 Q. All right. So you ran a regression in
6 your opening report, correct?

7 A. Well, I ran so many, I'm not sure which
8 one you're speaking of.

9 Q. So let me -- fair point.
10 You ran a set of regressions in your
11 opening report.

12 A. Yes.

13 Q. Okay. Now, those regressions are
14 testing the elasticity of demand for apps based
15 on a change in the price of the app, right?

16 A. As instrumented via change in the tax
17 rate, correct.

18 Q. Okay. Now, the regression you ran in
19 preparing your opening report isn't measuring how
20 a service fee change affects the price of an app
21 or an in-app purchase, right?

22 A. Correct. We've been through this
23 before. If -- if Google had varied its service
24 fee across more than a tiny amount of
25 transactions, I -- I could have employed a

1 different model, but I couldn't given the
2 restraint.

3 Q. Right. So just -- I -- I understand.
4 I just want to make sure we're clear about what
5 your regression does and -- and it doesn't do.

6 The regressions that you ran in your
7 opening report isn't measuring the effect of the
8 service fee on the price of the app or the in-app
9 purchases, right?

10 A. Correct. It's doing something close so
11 that I can make a prediction about how a change
12 in the service fee would change the prices.

13 Q. And you haven't run any regression that
14 measures how a change in the service fee affects
15 the price of an app or in-app purchases?

16 A. I've -- I haven't -- well, I've tested
17 and -- and analyzed the regressions that were run
18 by Dr. Williams and Burtis that -- that purport
19 to do that or that attempt to do that, but those
20 experiments are so fatally flawed and botched
21 that there is no learning to be done. There's --
22 there's no -- there's no economic knowledge that
23 can be gleaned from those botched experiments.

24 Q. Right. Now, the prices that developers
25 charge in the but-for world might depend on

1 would have been set are the prices that would
2 have been set most likely for the long haul.

3 Q. Okay. And the prices that developers
4 charge in the but-for world could depend on what
5 their competitors charge.

6 A. Yes.

7 Q. Can you think of any factors that could
8 cause one developer to pass on a reduced service
9 fee in the form of a lower price and -- and would
10 make another developer not do so?

11 A. Well, under the logit model, the
12 pass-through rate will be different depending
13 upon the share of the developer and the app
14 category. So anything that contributed to the
15 app developer having different share would
16 allow -- would be the basis for a different
17 pass-through rate.

18 Q. Can you think of any other factors
19 that would affect whether one developer would
20 pass through a reduced service fee and another
21 developer wouldn't?

22 A. Oh. "Wouldn't?" I mean, no. Wouldn't,
23 it's hard for me to conceive of, because almost
24 any -- any demand structure that I have would
25 have used, whether linear, logit or constant

1 that uses a dollar amount of sales tax?

2 A. Well, in the field -- it's one of the
3 fields in the transaction data that says "taxes",
4 and it -- it is -- it is stated in dollars, I
5 believe, not as percentage. So we get to see
6 what the relationship is between those changes,
7 right, as -- as predictive -- how predictive they
8 are to changes in prices. The fact that they may
9 be denominated in dollars doesn't mean they don't
10 come from ad valorem. I'm pretty confident that
11 they are always -- or that generally -- just to
12 be safe, they're generally set as a percentage of
13 revenues.

14 Q. Understood. But as you input them into
15 your model regarding the relationship between the
16 sales taxes and the prices, they were in dollar
17 terms and not percentage terms?

18 A. I believe that's the case. I can -- I
19 can check that out for you in a break, but I
20 believe that the way that it's entered into the
21 database is as dollars.

22 Q. Got it.

23 Now, going back to your formula for
24 pass-through, which, again, is essentially a
25 hundred minus the quantity share of the apps

1 transactions in its category, right?

2 A. That's for the app developer, but I
3 don't present it that way in the report. I
4 present it, as you know, at the category level.

5 Q. Understood.

6 A. Okay.

7 Q. But that's the general math of the
8 formula?

9 A. That's the math.

10 Q. Right. Fair to say that that math will
11 always produce a pass-through rate, unless the
12 app developer or -- has a hundred percent of a
13 Google Play category?

14 A. I think it's fair that -- that you'll
15 get a positive pass-through rate. You won't
16 necessarily get a big one, but you'll get a
17 positive pass-through rate with the exception
18 of the guy who dominates the field. And, you
19 know, again, this is -- hopefully this is
20 intuitive to the non-economist in that -- in that
21 your share is capturing your dominance in this
22 arena of competition. And so what the logit
23 model is telling us is that the more dominant you
24 are, the less -- the smaller percentage of the
25 pass -- of a cost saving you share with your --

1 with your client.

2 Q. Right. But just so we're clear, unless
3 the app has a hundred percent quantity share in
4 the category, your formula will predict a
5 positive pass-through rate?

6 A. For a given app developer, that -- that
7 is correct, yes.

8 Q. Okay. Now, you talked earlier about
9 the pass-through formula you have, potentially
10 predicting different rates from month to month or
11 week to week. We talked about that a little bit.

12 A. Yeah. If you were to measure it on a
13 monthly basis, there would be some variation that
14 you wouldn't get if you were to measure it across
15 the -- the class period. That is correct.

16 Q. Right. And your opinion is that it's
17 not appropriate to measure it on that short of a
18 time scale, correct?

19 A. Correct.

20 Q. Right. And what's the economic basis
21 for why it's inappropriate to measure it on that
22 week to week or month to month or those sorts of
23 time frames?

24 A. I don't think that an app developer
25 is going to revisit its pricing on a -- on a

1 apply to a model of logit demand if the -- if the
2 model in Paragraph 104 is a generic model?

3 A. Well, because the logit pass-through
4 rule states pass-through as a function of
5 industry concentration and not of cost, and so
6 when you asked me why doesn't -- you're asking me
7 basically why isn't the pass-through rate under
8 logit changing with the change in costs. It
9 doesn't. It's just a property of the logit
10 demand. It doesn't make the math on 104 wrong.
11 It doesn't make the logit wrong. It just -- it's
12 no longer a function of cost.

13 Q. So the property of the logit demand
14 model that you used for your pass-through is that
15 the price is a function of the concentration and
16 not of the cost?

17 A. The pass-through is a function of the
18 concentration, not of the cost, correct.

19 Q. All right. What is focal point pricing?

20 A. Focal point pricing is the notion that a
21 consumer might focus on the -- on the first digit
22 before the decimal, as opposed to the last two.
23 So it explains why a lot of firms end -- end
24 their prices in 99 cents, or other -- or other
25 combinations. Just a greater focus on the first

1 -- on the stuff before the decimal place than --
2 than after the decimal place.

3 Q. Okay. And do you -- focal point pricing
4 is a well-established concept in economics?

5 A. Sure.

6 Q. And in the real world, many developers
7 price transactions only at certain focal points?

8 MS. GIULIANELLI: Objection.

9 THE WITNESS: We -- we've -- I've given
10 you all the stats that I think you could ever
11 want to see and more, but, you know, we know that
12 a lot do but a lot don't. You know, 20 percent
13 of the top 200 don't end in 99 cents, right,
14 which is a big number.

15 BY MR. RAPHAEL:

16 Q. So fair to say, though, that in the real
17 world some developers price in way that seems
18 like they're focal point pricing and some
19 developers don't?

20 A. Given -- given the constraints that
21 Google imposed on some developers, yes, they
22 -- you know, they did price at 99 cents.

23 Q. Well, what analysis have you done, sir,
24 in your reports to determine what effect Google
25 -- any constraints that Google imposed on

1 BY MR. RAPHAEL:

2 Q. I guess what I'm asking is, is it your
3 opinion that focal point pricing doesn't explain
4 any developers' pricing in the actual world?

5 A. No, I think that's too harsh. I think
6 that focal point pricing is an important
7 consideration here.

8 Q. Okay. Now, and -- and the price floor
9 you talked about of setting prices at 99 cents,
10 that wouldn't affect developers who set their
11 prices quite a bit above 99 cents?

12 A. That's fair. I think that, when we
13 looked at the data, it's about -- it's about 20
14 percent of developers were at that 99 cent, so I
15 agree with you that -- that those would be the
16 ones who were constrained from -- from moving
17 downward.

18 Q. Okay. So the other 80 percent of
19 developers wouldn't be affected by what you're
20 calling the price floor that Google had in place?

21 A. Correct.

22 Q. Okay.

23 A. With one caveat in the sense that there
24 could be spillover effects from a floor being set
25 at 99 on what the next step up would be, but I

1 out, for the purposes of impact, is to say that
2 if all app developers within a category achieved
3 a certain cost reduction by virtue of enhanced
4 competition and, thereby, lower take rate, how
5 much of that would be shared with consumers in
6 the aggregate across the category. And, you
7 know, what I'm hearing is, oh, my God, have you
8 ruled out 99-cent things or things that end in 9?
9 No, we haven't -- we haven't ruled that out. But
10 we're talking about the share of the costs that
11 are being saved in the aggregate across a
12 category. We can allow for 79-cent pricing, we
13 can allow for 99-cent pricing, 29-cent pricing in
14 the but-for world. We're not putting any
15 restrictions on -- on what the price of a
16 particular app in a particular plan at a
17 particular point in time are.

18 BY MR. RAPHAEL:

19 Q. Right. So I just want to make sure I
20 get an answer to my question. So your model for
21 a pass-through isn't trying to take account in
22 any specific way for the phenomenon of focal
23 point pricing?

24 A. I -- I don't -- I don't think that the
25 mod -- that particular logit estimate of the 89

1 percent is accounting or needs to take account.
2 I think I need to account for it in my overall
3 opinions about what the but-for world would look
4 like. But the logit model is just telling us
5 what the implied pass-through rate is given a
6 reduction in costs, given the concentration
7 -- the typical concentration we see within
8 categories in -- you know, in the app industry.

9 Q. Okay. Your regressions regarding the
10 logit demand, did they have any fixed effect or
11 other mechanism to control for focal point
12 pricing?

13 A. Well, they did use fixed effects. I
14 don't know if you meant to say that, but they
15 don't have a separate control variable for focal
16 point. But it is true, now that you brought this
17 up, we do have app fixed effects, right? So to
18 the extent that an app stayed constant at a given
19 price over time or always ended at 99 -- let me
20 just say for the record what fixed effects is.
21 Quite literally, it's controlling for any of
22 these attributes of the app that are constant
23 over time. And so if that tendency to want to
24 end in 99 or 79 or 69 is constant, then, yes, my
25 regressions control for it.

1 monopoly power.

2 Q. Okay. Now, service fees on platforms
3 other than Google Play are marginal costs for
4 developers as well, right?

5 A. The service fee or the take rate charged
6 by Google to the developer can be understood as a
7 marginal cost.

8 Q. And when service fees are charged to
9 developers on other platforms that may compete
10 with Google Play, those are also properly
11 understood as marginal costs for the developers?

12 A. Correct.

13 Q. Okay. So if we saw service fees on
14 other platforms that are lower than Google Play's
15 service fees, those would be lower marginal costs
16 to those developers. Fair?

17 A. Fair.

18 Q. Okay. Now, would you predict, then,
19 that -- well, strike that.

20 In fact, it's true that many developers
21 do not charge different prices on platforms that
22 compete with Google Play that offer lower service
23 fees.

24 A. There are examples of that, sure.

25 Q. And do you know how many developers

1 record. The time is 2:08 p.m.

2 (Recess taken.)

3 THE VIDEOGRAPHER: We're now on the
4 record. The time is 2:10 p.m.

5 BY MR. RAPHAEL:

6 Q. Now that you've got your microphone
7 fixed, it's true, according to your report, that
8 some other app stores charge lower service fees
9 for some transactions than Google charges on
10 Google Play?

11 A. Yes. These -- these diminished
12 competitors, in part by virtue of the challenged
13 conduct, are charging lower, as economic theory
14 would predict they would charge lower. How else
15 would they get someone to switch?

16 Q. Right. And is it the case that all
17 developers charge lower prices on other app
18 stores that have lower service fees?

19 MS. GIULIANELLI: Objection.

20 THE WITNESS: Not all, no.

21 BY MR. RAPHAEL:

22 Q. So some developers charge the same price
23 on other app stores than Google Play where there
24 are lower service fees?

25 A. I would -- I would assume that's a safe

1 -- yeah, that is a safe assumption that you could
2 find examples of app prices being the same across
3 stores under today's, you know, diminished
4 competition where these rivals aren't really
5 offering meaningful substitution opportunities.

6 Q. Have you done any analysis in your
7 reports to determine whether the majority of
8 developers on the Google Play store and another
9 app store charged the same or different prices
10 across stores?

11 A. No, I haven't.

12 Q. Okay. Now, in your report, I think you
13 note that different PC gaming platforms charge
14 different service fees?

15 A. Sure.

16 Q. Right? So Microsoft now charges a 12
17 percent service fee on -- on PC gaming?

18 A. Yes.

19 Q. Okay. And Steam charges more than 12
20 percent for its PC gaming platform?

21 A. I think I give the percentages in my
22 report, but I -- I don't recall them being far
23 off from each other. I think it's a more
24 competitive marketplace.

25 Q. Right. Well, let's go to -- let's

1 developers.

2 Q. Right. But other than what's in Table
3 9, have you done any empirical analysis of the
4 effect on developers' ability or inability to
5 steer on whether they lowered their prices in
6 response to lowered service fees?

7 A. Other than 9, I -- I don't -- I haven't
8 done one, but what you're asking is a bit of a
9 trick question, which is, in the presence of
10 steering, we -- in the presence of an
11 anti-steering restraint, it is very hard to go
12 out and measure what the effect of steering would
13 be on -- on pass-through or app pricing.

14 Q. Okay. Now, your opinion is that
15 directing customers from inside the app
16 downloaded from the Play Store to options outside
17 of the Play Store is the most efficient channel
18 for steering?

19 A. Correct.

20 Q. Okay. Now, what -- what empirical
21 analysis have you done to support that opinion?

22 A. Yeah. This has been asked and answered,
23 but I'll -- we'll go back through it again, if
24 you want.

25 And let me have the question back again,

1 please.

2 Q. Have you done any empirical analysis to
3 support your opinion that directing customers
4 from inside the app downloaded from the Play
5 Store to options outside of the Play Store is
6 the most efficient channel for steering?

7 A. So I think -- I think it's the same
8 answer that I gave you this morning, that I
9 haven't done original empiricism, but I -- I'm
10 aware that Google has not prevented steering on
11 billboards, television advertisements and
12 Internet advertisements, but they have prevented
13 steering from within the app itself once it's
14 downloaded on the Play Store. And that tells me
15 that, to Google, it's the most important channel.
16 Why would Google block it otherwise, right? So I
17 feel like it's a very natural inference for an
18 economist to make that this is the most -- this
19 is the most efficient.

20 If you -- put it this way: For you to
21 go any other path would incur new costs that you
22 wouldn't otherwise incur by steering within
23 the app store, right? To get someone else's
24 attention on a billboard, you've gotta pay money.
25 You don't need to do that when it's inside of

1 your own app.

2 Q. Do you agree that payment systems
3 that require exiting the app to complete the
4 transaction aren't reasonable substitutes for
5 Google Play billing?

6 MS. GIULIANELLI: Objection.

7 THE WITNESS: I didn't understand it,
8 so --

9 BY MR. RAPHAEL:

10 Q. Are payment systems that would require
11 exiting the app to complete a transaction
12 reasonable substitutes for developers or
13 consumers to using Google Play billing?

14 MS. GIULIANELLI: Same objection.

15 THE WITNESS: I don't know if I have an
16 opinion here, and I'm just not aware of any
17 payment processor who requires the customer
18 to leave the app in order to consummate the
19 purchase? I just -- I'm just not aware -- I'm
20 just not aware that that would even -- that is
21 even a thing. I wasn't aware of that.

22 BY MR. RAPHAEL:

23 Q. Okay. Is there a term in your
24 pass-through rate formula for the extent to which
25 developers can steer?

1 A. No.

2 Q. Why not?

3 A. Well, as you know, I ultimately
4 chose the logit model, and the logit model's
5 pass-through formula simplifies to a function of
6 market share, which is not a term for steering.

7 Q. All right. So the -- the logit
8 pass-through formula that you used to calculate
9 the pass-through rates doesn't depend on
10 steering?

11 A. I would say that steering ensures the
12 pass-through is going to be positive. Logit
13 allows us to estimate precisely what it's going
14 to be.

15 Q. Okay. So fair to say, then, that the --
16 the logit model pass-through formula that you've
17 used in your report depends on steering?

18 A. No, I don't think it depends on steering
19 because we can come up with -- we can come up
20 with explanations for how pass-through would
21 occur in the presence of the anti-steering
22 restraint.

23 Q. So you -- there's reasons why
24 steering would occur despite the anti-steering
25 restrictions?

1 A. No, there's reasons why pass-through
2 would occur.

3 Q. Oh, excuse me. Okay. So there are
4 reasons why -- why you would expect pass-through
5 regardless of the anti-steering restrictions?

6 A. Correct. I think that while it's true
7 that the anti-steering restrictions make for a
8 very potent impediment to steering and
9 pass-through, there are other ways in which
10 pass-through would occur, even without steering.
11 If I could, you know, Google has modeled
12 different worlds, and so I've kind of mimicked
13 the assumption of where the developer could
14 choose its payment processor, right? And you can
15 imagine a world where developers look around at a
16 whole bunch of payment processors in kind of an
17 open and unfettered market and go with the
18 payment processor offering a competitive rate, or
19 one of the lowest rates, and then competition
20 among developers in the same category would put
21 downward pressure on the prices that they charge
22 to their customers.

23 So there are -- there are mechanisms
24 that get you to pass-through and lower prices
25 outside of steering. But I'll always hold, until

1 I'm blue in the face, that steering is like a
2 supercharger. It would -- it would -- it would
3 boost all of these properties.

4 Q. Have you done any analysis to determine
5 by how much it would supercharge all these
6 properties?

7 A. No. But -- no. But what I'm assuming,
8 I mean, at least in my -- when I wrote this
9 report, I'm assuming that the challenged conduct
10 is gone, and part of the challenged conduct is
11 the anti-steering restrictions. And so I'm
12 confident that there would be pass-through; that
13 it would be positive. Now the question is,
14 what's the tool in economics that I can use to
15 reliably estimate the extent of the pass-through,
16 and that was the logit model.

17 Q. Right. Now, Google doesn't restrict any
18 marketing or advertising of other platforms
19 -- strike that.

20 Google doesn't restrict developers from
21 marketing or advertising transactions on other
22 platforms outside of the app that's been
23 downloaded from Google Play.

24 A. That's correct. There -- there's
25 -- Google understands that there would be a

1 Q. Well, I'm just saying -- I guess
2 what I'm asking is -- maybe I'll ask it this
3 way: Have -- have you done any analysis that
4 compares the profitability of steering for
5 developers via in app communications versus
6 steering using outside of the app communications?

7 A. I haven't, but I know this: That to go
8 outside would require a newfound advertising cost
9 that would not otherwise be incurred if you could
10 do it in-app. And that would necessarily lower
11 the profitability of that -- of that steering
12 relative to steering within the app.

13 Q. Have you done any empirical analysis in
14 your report of whether it would be profitable for
15 any particular developer to reduce prices by a
16 full focal point?

17 A. I don't know what that means.

18 Q. Well, --

19 A. What's a full focal point?

20 Q. Well, you told me what -- what's your
21 definition of a focal point?

22 A. Well, we talked about how it's focusing
23 the attention on the left side of the decimal
24 place so you can kind of go high on the right and
25 it's not really going to scare off the customers.

1 the play points program?

2 A. The reason why that's the case is that
3 at [REDACTED] percent or whatever paltry offering that
4 Google's making given the impaired competition
5 that it caused, it's not even worth figuring it
6 out. It's like -- it's like asking here's a few
7 pennies, go -- go spend. Like, I don't -- don't
8 bother me, I'm not going to enroll and learn how
9 to use the play points when it's set at [REDACTED]
10 percent.

11 Q. My question was in the actual world,
12 it's correct that only some consumers signed up
13 for the play points program?

14 A. In its -- in its existing state of
15 chintziness, yes, very few people availed
16 themselves of -- of the -- of the program.

17 Q. And, in fact, in the actual world, only
18 some of the people who did sign up for the play
19 points program actually used the play points they
20 earned?

21 A. I asked the question why bother. When
22 it's effectively zero, why bother?

23 Q. Okay. But my question was, in the
24 actual world, only some of the people who signed
25 up for the play points program actually used the

1 play points that they earned?

2 A. I can accept that -- that when the
3 -- when the subsidy was at [REDACTED] percent or
4 whatever paltry amount that was offered, that
5 very -- you'd get very little participation in
6 the program.

7 Q. So the answer to my question is yes?

8 A. I can -- I can accept. I haven't
9 studied what percentage redeemed, but when it's
10 so small -- like, imagine instead of a [REDACTED] it was
11 0.0 or 0.0001, right, and you asked me the
12 question, Hal, why isn't anyone, you know,
13 spending time figuring out how to redeem play
14 points, right? I'd say because we're literally
15 taking a penny off of their -- off of a \$10
16 purchase. Why would you go through it?

17 Q. I understand that you think that the
18 play points were paltry. My question is it's
19 just a fact that only some of the people that
20 signed up for the play points program used their
21 play points, right?

22 A. I can accept that fact. I haven't
23 studied what percentage have.

24 Q. Okay. So in your reports, you haven't
25 identified any model to determine which

1 -- the -- the flip, you know, where it occurs,
2 but I can -- I can conceive that [REDACTED] is so paltry
3 that it just wouldn't make a difference for
4 consumers.

5 Q. Okay. Now, in your reports have you
6 identified any model to determine which users
7 would have signed up for play points in the
8 but-for world?

9 A. No. I don't need to because what the
10 model is giving me is what Google would pay in
11 the aggregate across all consumers in terms of
12 subsidy. So that 8 percent that comes out of the
13 play points model, and doing by memory, is what
14 happens in the aggregate. So, it's conceivable
15 that -- that some consumers aren't contributing
16 to that -- to that 8 percent or some people are
17 doing it disproportionately, but that is going to
18 be the average subsidy that comes about via the
19 -- that if the locus of competition were to occur
20 on the points side of the market.

21 Q. So the answer to my question is, no, you
22 -- in your reports you haven't put forth any
23 model to determine which users would have signed
24 up for play points in the but-for world?

25 A. I don't think I need to, just to be

1 clear --

2 Q. I'm not asking you whether you need to.

3 A. Okay.

4 Q. So I'm going to ask my question again.

5 A. Okay.

6 Q. In your reports, did you put forth any
7 model to determine in the but-for world which
8 users would have signed up for the play points
9 program?

10 A. That's not what the model is calling
11 for. I'll be clear, the model wants to know
12 -- the model is solving for the size of the
13 subsidy across all consumers, right, and if the
14 model is telling us 8 percent, the way to
15 interpret that -- that -- that parameter is that,
16 on average, the subsidy offered to consumers in
17 the but-for world, if the locus of competition
18 were exclusively on the play points side, right,
19 would be 8 percent.

20 Q. Right. And so the model that you put
21 forward in your report regarding play points
22 isn't telling us anything about what individual
23 consumers would do with respect to signing up for
24 the play points program or using their play
25 points, correct?

1 A. I think the model is. I think that at 8
2 percent, the economic intuition -- well, this is
3 the intuition that I'm drawing from the model --
4 is that when the benefit gets so large, that is
5 going to spur participation and usage in the
6 system.

7 Q. Great.

8 Your -- your testimony here today, sir,
9 is that you have a model in your reports that can
10 tell the Court and the jury in this case which of
11 the members of the putative class would have
12 signed up for play points and who would have used
13 them?

14 MS. GIULIANELLI: Objection to the form.

15 THE WITNESS: I didn't say that. I said
16 that if the but-for subsidy were to rise to 8
17 percent, then it would be embraced -- the play
18 points system would be embraced across the class
19 just as the way that the points system in the
20 AMEX marketplace is embraced across American
21 Express users.

22 BY MR. RAPHAEL:

23 Q. Okay. So I want to -- I want to be
24 clear. You have -- your testimony is that in the
25 but-for world, every member of the putative class

1 would sign up for the play points program and use
2 their play points?

3 MS. GIULIANELLI: Objection.

4 THE WITNESS: I cannot -- this is the
5 first time I've been asked that question. I'm
6 just hearing it afresh, right? I cannot fathom
7 why a user would say, no, take back -- I was
8 going to spend a hundred dollars and I realize
9 you're trying to give me \$8, but, no, I don't
10 want the \$8, I want to spend the full hundred
11 myself. It would be crazy -- it would be crazy
12 to -- to do that.

13 BY MR. RAPHAEL:

14 Q. Sir, in the actual world, some consumers
15 don't sign up for play points or don't use the
16 play points that they earn, correct?

17 A. We've established, I hope, that when you
18 get [REDACTED] back on a hundred dollar purchase,
19 I'd say to myself I'm a busy dude, I don't know
20 if I'm going to sign up for this thing and go
21 through the hassle for the [REDACTED] subsidy.

22 Q. Right. And so your testimony is that if
23 Google changed the play points rate that you've
24 put in your report, that every member of the
25 putative class would have signed up for the play

1 points program and used play points?

2 MS. GIULIANELLI: Objection.

3 THE WITNESS: I think -- I think it's a
4 fair assumption. Like, the model certainly is
5 not calling on this, but I think it's a fair
6 assumption that once it goes up to 8 percent that
7 -- that everyone who is making purchases would
8 -- would either redeem it or at least enroll so
9 as to be able -- to be capable of taking the
10 subsidy at -- at those terms.

11 BY MR. RAPHAEL:

12 Q. That's an assumption, though, that
13 you're making. It's not what the model tells
14 you?

15 A. Well, the model spits out, just to be
16 clear, what the average subsidy is across all
17 users.

18 Q. Now, you -- would you agree with me that
19 the counterfactual experiment lies at the heart
20 of antitrust analysis?

21 A. Sure. I mean, it's an important thing.
22 It's -- I don't know if it's at the heart, but
23 you need -- you need to have a counterfactual.
24 You need to model the counterfactual.

25 Q. Could you describe for me the

1 methodology you used to construct
2 counterfactuals?

3 A. In general?

4 Q. Yes.

5 A. We try to preserve all the attributes of
6 the actual world, Google choosing a singular
7 headline rate that applies to everyone. And we
8 -- and we deviate only in the restraints that are
9 being challenged. So we try to model a world in
10 which everything is identical. We call it the
11 ceteris paribus assumption. But we try to model,
12 holding everything else constant, what would
13 competition have looked like in the absence of
14 this set of restraints.

15 Q. Understood. Now, in the actual world
16 Google is a profit-maximizing firm?

17 A. In the actual and in the but-for, I'll
18 give you that. It's always profit maximizing.

19 Q. That's what I would think.

20 A. I mean, you take that away from me -- I
21 mean, you take that away from an economist, we
22 don't say a lot. We're very quiet at cocktail
23 parties if you take that away.

24 Q. So that's where I was going to go. I
25 just want to make sure I understand in the -- in

1 the correctly constructed but-for world, an
2 economist should assume that Google is a
3 profit-maximizing firm.

4 A. Absolutely.

5 Q. Now, your opinion is that Google would
6 earn lower profits if it eliminated the
7 challenged conduct?

8 A. Lower profits but still enormous sums,
9 yes.

10 Q. But lower?

11 A. Lower, yes.

12 Q. Right. So if Google's a
13 profit-maximizing firm and it lost profits in the
14 but-for world without the challenged conduct,
15 would you expect Google to take steps to try to
16 earn those profits through some other means?

17 A. Not if they're anticompetitive. I mean,
18 if a court has told that you that, you know, the
19 tie-in was illegal, you can't reconstruct the tie
20 through some other means to try to bring back
21 those -- those anticompetitive profits.

22 Q. Well, let me ask a clearer question: If
23 Google's a profit-maximizing firm, in a world
24 without the challenged conduct where you say
25 Google would earn lower profits, would you expect

1 Google to try to take any lawful or competitive
2 means to earn back those profits?

3 A. Well, with the caveat, it's not just
4 anything lawful, it's gotta be something that is
5 profit maximizing. Like, for example, Dr. Burtis
6 likes to talk about, you know, all of a sudden
7 charging for free apps, you know, the idea that
8 Google would charge for free apps is as silly as
9 charging for searches on Google Search. The idea
10 would -- it would just violate the entire
11 business model. So it has to be -- I'm with you
12 that it has to be profit maximizing.

13 Q. Right. Right. But in a but-for world
14 where Google had lower profits, as a
15 profit-maximizing firm, they would try to do
16 anything else to earn back those profits if it
17 was profit-maximizing?

18 A. Well, a few -- a few other criteria.
19 It's gotta be profit maximizing, and it's gotta
20 be legal and procompetitive. You can't replicate
21 the tie-in through some other means.

22 Q. Is there anything anticompetitive about
23 Google charging the developers for the use of its
24 intellectual property?

25 A. The -- the mere charging in the absence

1 purchase transactions where other firms serve as
2 the payment processor?

3 A. Well, I -- I want to push back on that,
4 respectfully, just a bit, if I could, all right,
5 because you're disavowing all the advertising
6 revenue, you're disavowing what it made in the --
7 in the market for app distribution, you're
8 disavowing what it's making on all the other 60
9 percent of the transactions that it is
10 consummating the in-app transactions on. So I
11 just want the record to -- to be crystal clear
12 that it's not like Google is just left on the
13 street, you know, begging for -- for cash out
14 there, right?

15 Q. So, let's talk about a particular
16 transaction in the but-for world where the app
17 has been downloaded for free.

18 A. Okay.

19 Q. So in that scenario, Google would not
20 have earned any service fee from the transaction
21 in the app distribution market.

22 A. Right.

23 Q. And then there's a transaction in the
24 in-app aftermarket where Google doesn't serve as
25 the payment processor. Do you -- do you have

1 that?

2 A. Yeah.

3 Q. Okay. In -- in that transaction in the
4 but-for world, setting aside advertising that
5 Google might have -- might have earned through
6 some other way, Google's not earning any service
7 fee at all on that transaction?

8 A. That's fair.

9 Q. Okay. Now, I think your opinion in your
10 report is that in the but-for world, Google would
11 earn a service fee rate of [REDACTED] percent on in-app
12 transactions for which it served as the payment
13 processor?

14 A. And not just the payment processor, on
15 all the -- the whole suite of aftermarket
16 services.

17 Q. Okay. Well, does Google provide any
18 aftermarket services on the transactions for
19 which it doesn't serve as payment processor?

20 MS. GIULIANELLI: Objection to form.

21 THE WITNESS: Well, we -- we've never
22 seen that world, right? So you're asking me if
23 -- am I assuming that they're not? Because in
24 the real world they're tying -- they're forcing
25 themselves to be in every transaction.

REDACTED VERSION

Exhibit A48 to C. Cramer Declaration

EXHIBIT J

EQP H~~K~~F GP V~~K~~CN/H~~K~~NGF WPF GT UGCN

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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

-----x
IN RE GOOGLE PLAY STORE Case No.
ANTITRUST LITIGATION 3:21-md-02981-JD

THIS DOCUMENT RELATES TO:

Epic Games Inc. v. Google LLC, et al.,
Case No: 3:20-cv-05671-JD

In re Google Play Consumer
Antitrust Litigation,
Case No: 3:20-cv-05761-JD

In re Google Play Developer
Litigation,
Case No: 3:20-cv-05792-JD

State of Utah, et al.,
v. Google LLC, et al.,
Case No: 3:21-cv-05227-JD

-----x

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REMOTE VIDEOTAPED DEPOSITION BY VIRTUAL ZOOM OF

RICHARD FENG

Friday, January 14, 2022

Volume 1 (Pages 1-396)

Reported By: Lynne Ledanois, CSR 6811

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UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

-----x

IN RE GOOGLE PLAY STORE Case No.
ANTITRUST LITIGATION 3:21-md-02981-JD

THIS DOCUMENT RELATES TO:

Epic Games Inc. v. Google LLC, et al.,
Case No: 3:20-cv-05671-JD

In re Google Play Consumer
Antitrust Litigation,
Case No: 3:20-cv-05761-JD

In re Google Play Developer
Litigation,
Case No: 3:20-cv-05792-JD

State of Utah, et al.,
v. Google LLC, et al.,
Case No: 3:21-cv-05227-JD

-----x

Remote videotaped deposition of
RICHARD FENG, taken in Palo Alto, California,
commencing at 8:59 a.m., on Friday,
January 14, 2022 before Lynne Ledanois,
Certified Shorthand Reporter No. 6811

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I N D E X O F E X A M I N A T I O N

Examination by:

Page

Mr. Bates

15

Mr. Byars

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1 Friday, January 14, 2022

2 8:59 a.m.

3
4 VIDEOGRAPHER: Good morning.

5 We're on the record at 8:59 a.m.

6 on January 14th, 2022.

7 Please note microphones are
8 sensitive and may pick up
9 whispering, private conversations
10 and cell interference.

11 Please turn off all cell
12 phones or place them away from the
13 microphones as they can interfere
14 with the deposition audio.

15 Audio and video recording
16 will continue to take place unless
17 all parties agree to go off the
18 record.

19 This is Media Unit Number 1
20 of the video-recorded deposition
21 of Paul Feng in the matter Re:
22 Google Play Store Antitrust
23 Litigation filed in the
24 U.S. District Court, Northern
25 District of California, San

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1 Francisco Division. Case
2 number 3:21-md-02981-JD.

3 This deposition is being
4 held virtually on Zoom.

5 My name is Bret Hampton from
6 the firm Veritext; I'm the
7 videographer. The court reporter
8 is Lynne Ledanois from Veritext.

9 I'm not authorized to
10 administer an oath, I'm not
11 related to any party in this
12 action, nor am I financially
13 interested in the outcome.

14 Would counsel and everyone
15 present please identify who you
16 represent. After that, the court
17 reporter may swear in the witness.
18 Thank you.

19 MR. BATES: Good morning.
20 Kyle Bates from the firm of
21 Hausfeld for the developer
22 plaintiffs. With me also is my
23 colleague Daniel Kees.

24 MR. BYARS: This is Brent
25 Byars from Cravath Swaine & Moore

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1 representing plaintiff and counter
2 defendant Epic Games. And with me
3 is Daniel Ottaunick also from
4 Cravath.

5 MR. SUMMERS: Glen Summers
6 with Bartlit Beck LLP on behalf of
7 the consumer class. With me is
8 Randall Ewing of the Korein
9 Tillery firm.

10 MR. MARX: Jonathan Marx
11 with the North Carolina Department
12 of Justice on behalf of the state
13 plaintiffs in the Google action.

14 MR. ROCCA: Good morning.
15 This is Brian Rocca of Morgan
16 Lewis representing Google
17 defendants as well as the witness,
18 Mr. Feng.

19 I'm joined by my colleague
20 Cole Pfeiffer of Morgan Lewis and
21 in-house counsel for Google, Ken
22 Maikish.

23
24 PAUL FENG,
25 having been duly sworn, testified as follow

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1 EXAMINATION

2 BY MR. BATES:

3 Q Good morning, Mr. Feng. How
4 are you?

5 A I'm good. How are you?

6 Q Good. Thank you.

7 We met off the record just a
8 moment ago. But again, my name is
9 Kyle Bates. I'm one of the attorneys
10 representing the developer plaintiffs
11 in this case.

12 Do you understand that?

13 A I do.

14 Q Okay. Have you had your
15 deposition taken before, Mr. Feng?

16 A Yes.

17 Q How many times?

18 A I believe once.

19 Q And when was that?

20 A I want to say it was around
21 2010, but it was a few years ago.

22 Q Can you tell me generally
23 what kind of a case it was in which
24 you gave deposition testimony?

25 A My recollection is that it

1 Q I see. So Google Play
2 Billing is a framework of features
3 that allows developers to do the three
4 things that your team is responsible
5 for, selling paid apps, in-app
6 purchases and Play Pass; is that
7 correct?

8 A Google Play Billing is
9 broader than just features for
10 developers.

11 Q Can you describe what Google
12 Play Billing is for me?

13 A As I noted, Google Play
14 Billing is an integral part of Play.
15 And it is the set of features that
16 allow, one, developers to build
17 premium paid features into their apps,
18 but also the features for users to
19 easily and seamlessly purchase those
20 items, consume those items and have a
21 good purchasing experience.

22 Q What is your involvement in
23 the development and implementation of
24 Google Play Billing?

25 A I lead the team that builds

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1 variety of different people.

2 Are there specific
3 conversations? Do you want me to
4 list dozens of people?

5 BY MR. BATES:

6 Q I don't. Was Sameer Samat
7 involved in the conversations about
8 changing the service fee percentage
9 that you were involved in?

10 A Yes.

11 Q What is Mr. Samat's title?

12 A Sameer is VP of product
13 management responsible for Play,
14 Android, Wear, something like that.

15 Q I see. He's your superior;
16 is that correct?

17 A He is, yes.

18 Q What is the basis for the
19 percentage of the service fee that's
20 charged to developers?

21 A So as I noted earlier, our
22 service fee has -- there's not one
23 service fee. Our service fee varies
24 and over the years, you know, the --
25 that we've added wrinkles and

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1 components to how the service fee is
2 charged.

3 And so -- but at the end of
4 the day, the service fee is the fee we
5 charge for all of the services and
6 value that we believe we provide to
7 developers who use Google Play, right.

8 So that includes -- it is
9 not a transaction fee. It's a fee for
10 the access to all of the users who use
11 Play, it is a fee for all the services
12 and tools we provide to help you get
13 your app built.

14 It's a fee for distribution.
15 It's a fee for -- yes, for
16 monetization capabilities that we
17 offer.

18 And there's features that we
19 use -- we build that allow developers
20 to optimize and manage the lifetime
21 value of their users and also funds
22 Android.

23 So that's the basis for the
24 service fee.

25 Q I see. So it's a trade;

1 of this concern, but, yes, we did
2 consider other ways to charge
3 developers.

4 Q Was this not a concern at
5 all when you were considering other
6 ways to charge developers?

7 A I wouldn't say that it
8 wasn't a concern. It's certainly the
9 case that various people would point
10 out, like developers, regulators,
11 legislators would point out, it seems
12 like that you're not charging everyone
13 and that seems unfair.

14 I think we have good reasons
15 for that. We deliver a ton of value
16 to game developers.

17 I'm not sure that I
18 completely agree that the value for
19 free appears to be much greater than
20 the value for paid. We definitely
21 deliver a lot of value. We've talked
22 about that value in this deposition
23 for digital goods providers.

24 It's a business model that
25 worked, it's a business model that we

1 have had since the beginning of Play
2 and it's worked out really well for a
3 lot of these digital goods developers,
4 right.

5 But it is something that
6 people have highlighted. It is
7 something that various stakeholders
8 have argued is unreasonable. And so
9 we considered it as we thought about
10 are there ways we can make -- we can
11 improve our business model.

12 The reality is that even
13 developers who use Play billing
14 benefit substantially from having all
15 those apps that don't pay a service
16 fee.

17 The apps that are not paying
18 a service fee attract users that make
19 the Play platform and Play -- and
20 Android much more valuable for
21 everyone, including Google Play
22 Billing developers.

23 So we think that the model
24 continues to make sense. But, yes, we
25 have thought about it, you know, and

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1 we've considered alternatives.

2 The other thing to highlight
3 is that those alternatives also have a
4 cost. We've considered other ways to
5 charge and we haven't made too many of
6 these changes yet because they have
7 other downsides. But we could charge
8 in other ways.

9 Today's model allows us to
10 charge only when developers make
11 money, like if we were to charge for
12 other -- in other ways, like let's say
13 we [REDACTED] or
14 let's say we [REDACTED]
15 [REDACTED] you might see much fewer
16 developers and much less content on
17 Android and the downsides for the
18 entirety of the ecosystem might be
19 substantially worse.

20 So, yes, it was a concern.
21 It's something we always think about.
22 We hear it, but I'm not sure that it
23 was the only reason that we embarked
24 on these business model questions.

25 MR. BYARS: I move to strike

REDACTED VERSION

Exhibit A49 to C. Cramer Declaration

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[Additional Counsel on Signature Page]

UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

**IN RE GOOGLE PLAY CONSUMER
ANTITRUST LITIGATION**

RELATED ACTIONS:

Epic Games Inc. v. Google LLC et al.,
Case No. 3:20-cv-05671-JD

*In re Google Play Developer Antitrust
Litigation*, Case No. 3:20-cv-05792-JD

State of Utah, et al., v. Google LLC, et al.,
Case No. 3:21-cv-05227-JD

*Match Group, LLC, et al. v. Google LLC, et
al.*, Case No. 3:22-cv-02746-JD

No. 3:20-CV-05761-JD

**CONSUMER PLAINTIFFS' REPLY
IN SUPPORT OF THEIR MOTION
FOR CLASS CERTIFICATION**

Hearing Date: August 4, 2022
Hearing Time: 10:00 a.m.
Courtroom: Courtroom 11, 19th Floor
Judge: The Honorable James Donato

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INTRODUCTION

In its opposition, Google derides consumers for spending the “bulk of their motion ... attacking Google’s business practices.” Dkt. 300 (“Opp.”) at 1. But Google’s monopolistic conduct demonstrates the enormous amount of common evidence of wrongdoing that would predominate over any individualized issues at trial. The conduct at issue includes predation, an array of exclusionary contracts, and numerous bribes and threats aimed at potential competitors. A trial on Google’s anticompetitive schemes will require the presentation of voluminous common evidence, which will plainly predominate over any individualized issues.

Committing the very transgression Google falsely accuses consumers of, Google’s opposition focuses on arguments about the merits of the case, including its criticisms of Dr. Singer’s substantive analysis, that are inappropriate at the class certification stage. Those arguments also fail on the merits for the same reason they fail in the *Daubert* context.

The main thrust of Google’s opposition—that pass-through is “not susceptible to generalized class-wide proof”—is foreclosed by the Ninth Circuit’s recent decision in *Olean Wholesale Grocery Cooperative, Inc. v. Bumble Bee Foods, LLC*, 31 F.4th 651 (2022) (en banc). Google argues that pass-through is “exceptional” (based on its own economist’s analysis), and therefore must be proven with individualized evidence. Opp. at 15. Google’s economist is free to take this position—one that Plaintiffs will prove is fundamentally flawed—but it cannot outweigh Dr. Singer’s reliable methodology assessing classwide damages. Instead, Google merely argues that “plaintiffs’ evidence relating to the common question ... [is] unpersuasive and unlikely to succeed.” *Olean*, 31 F.4th at 667. Plaintiffs can prove their case with common evidence, and certification is warranted. It will be up to the jury to decide whether the evidence is persuasive. *Id.*

Google is also wrong that its monopolization has benefitted some consumers. Google argues that competition would harm consumers by forcing it to _____ or to reduce security. Speculation that _____ for the first time in its history—causing some class members to pay *more* under competitive conditions—is no reason to deny class certification. There is no reason or economic rationale to suggest competition would lead Google to make its product worse, and acceptance of its argument would allow any

monopolist to escape liability through unilateral speculation about what it would be willing to do if it lost monopoly power. In any event, this, too, is a question for the merits.

ARGUMENT

I. Common Questions Predominate, Satisfying Rule 23(b)(3)

Ignoring the overwhelming predominance of undisputedly common issues in this monopolization case, Google focuses just on antitrust injury, claiming that “Plaintiffs have no common proof” of pass-through, that Google would “lower service fees at all,” or that consumers “would have been injured under their Play Points theory.” Opp. at 8. But Google’s argument ignores Dr. Singer’s expert analysis demonstrating common impact through well-accepted economic models and is a rehash of its *Daubert* motion, which fails for multiple reasons. See Dkt. 298 (“*Daubert* Opp.”). Dr. Singer’s modeling reliably demonstrates common impact. *Id.*

A. Dr. Singer’s Model Shows All Developers Would Be Subject to Lower Take Rates Absent Google’s Monopolization

As explained in Plaintiffs’ opening brief, Dr. Singer’s models of the App Distribution Market and In-App Aftermarket demonstrate that Google’s 30% headline take rate is supra-competitive, and that Google would be forced to lower prices in the but-for world. Dkt. 280 (“Mot.”) at 10-11. Aside from questioning an input, Google does not challenge the reliability of that model in its *Daubert* briefing. Dkt. 282 (“*Daubert* Br.”) at 13-14. Instead, Google appears to argue that “not all developers would be subject to lower service fees in the but-for world” because it would keep its 30% take rate in the face of competition, competing with other stores *only* through a “targeted approach” of offering discounts to some developers. Opp. at 16-17. Most importantly, whether Google’s contention has merit can be resolved on a classwide basis and, therefore, cannot defeat class certification. Second, Google’s argument has no support in economics, the law, or the facts.

First, it is false that Google and its competitors have employed a “targeted approach” to pricing. *Id.* at 17. Google has used its uniform 30% take rate for the vast majority of developers, with negotiated programs formulaically reducing its rate from the headline rate representing

of U.S. developers. Ex. 3¹ (Singer Reply) ¶ 8. Likewise, Google’s recent

¹ Exhibit citations in this reply refer to the consecutively-numbered exhibits of the Giulianelli Declaration filed in support of class certification, Dkt. 280-1, and the Giulianelli Declaration filed in support of this reply.

pricing reductions from 30% to 15% for the first \$1 million in developer revenue per year and for subscription products apply uniformly to *all* developers. Ex. 68 (<https://android-developers.googleblog.com/2021/03/boosting-dev-success.html>); Ex. 69 (<https://android-developers.googleblog.com/2021/10/evolving-business-model.html>). Even for the “bespoke” Project Hug deals—which are anticompetitive and would be absent in the but-for world—Google’s headline take rate was “non-negotiable.” Ex. 40 (GOOG-PLAY-004588725); Ex. 2 (Singer Rpt.) ¶¶ 110-14.² A key Google executive confirmed that Google doesn’t “typically negotiate individually with developers on the rev share” because “we had interest in advancing the ecosystem as a collective, and so that was a principle from the beginning.” Ex. 70 (Rosenberg Dep.) 123:22-124:23. A uniform approach is Google’s norm, and individualized discounts are the exception. Likewise, contrary to Google’s suggestion, entrants have already attempted to compete with cheaper take rates for *all* developers. International stores offer 20% (One Store) and 25% (Aptoid). Ex. 2 (Singer Rpt.) ¶¶ 196-98.

[REDACTED]

[REDACTED] *Id.* ¶¶ 104-09.

Second, Google ignores that a competitive but-for world would foster more general competition than the current world constrained by Google’s monopoly power. Google’s anticompetitive conduct affects “all market participants, creating an inference of class-wide impact” that cannot be undone due to “different bargaining power.” *Olean*, 31 F.4th at 671, 677; *see also* Mot. at 21-22 (citing further cases). In an open market, it is unrealistic to expect that Google would individually negotiate with tens of thousands of developers. Ex. 3 (Singer Reply) ¶ 10. Without Google’s contractual and technical restrictions, *all* apps would have the ability to freely steer to cheaper alternatives. And Google recognized that if [REDACTED], the result would [REDACTED] and Google would [REDACTED]

[REDACTED] Ex. 71 (GOOG-PLAY-000542516.R) at -532. In other words, Google’s current ability to price discriminate by discounting only certain large developers reflects its market power. Ex. 2 (Singer Rpt.) ¶ 148. In short, Google would be [REDACTED]

² This case is nothing like *In re Flash Memory Antitrust Litig.*, No. C 07-0086 SBA, 2010 WL 2332081 (N.D. Cal. June 9, 2010), where three direct purchasers who controlled 82% of the market made “individualized negotiations and contracts with Defendants.” *Id.* at *9.

1 forced to compete on price for *all* developers if it could not rely on its anticompetitive conduct to
2 stymy competitors.

3 *Third*, that some developers may negotiate *even lower* prices in the but-for world does not
4 defeat common impact. Dr. Singer’s model accounts for those deals by extending the discount
5 achieved in the actual world, albeit from the lower but-for headline rate. Ex. 3 (Singer Reply) ¶¶ 7-
6 12. And Dr. Singer reliably shows that Google’s take rate would be lower for *all* apps in the but-
7 for world. For example, as noted above, Google has a policy favoring uniformity and it uses form
8 Developer Distribution Agreements for all developers. Ex. 2 (Singer Rpt.) ¶ 119 & n.276.

9 **B. Consumer Plaintiffs Will Prove Pass-Through with Classwide Evidence**

10 **1. Dr. Singer’s Model Is Sound Classwide Proof of Pass-Through**

11 Dr. Singer provides reliable proof of pass-through, “a class-wide question[,] in one stroke.”
12 *Olean*, 31 F.4th at 666. Google attacks this pass-through model, claiming that it relies on theoret-
13 ical assumptions, that it fails to employ regressions, and that it cannot identify uninjured class
14 members. These arguments ignore the rigorous work Dr. Singer performed to validate his work.

15 Google claims that Dr. Singer did not run any regressions to calculate pass-through, and
16 instead relied on “a *theory* of universal pass-through.” Opp. at 14-15.³ But Dr. Singer did not
17 simply rely on a theory. He ran regressions on real-world market shares and prices using each of
18 Google’s 35 app categories as a separate demand system to determine the demand curve faced by
19 *each* developer and to test the fit of the logit model to the data. Ex. 2 (Singer Rpt.) ¶¶ 235-38 &
20 Table 7. Google has not challenged those regressions. Only after the logit model proved to fit the
21 data, Dr. Singer calculated pass-through for *each* app using the standard logit pass-through for-
22 mula, derived mathematically in peer-reviewed literature, based on each app’s share of the cate-
23 gory in which it competed. *Id.* ¶ 239. The result is a model that calculates pass-through on an app-
24 by-app level using established economic methods. *Id.* ¶¶ 235-39; Ex. 72 (Singer Dep.) 130:12-25.

25
26 ³ Google notes that Dr. Singer did not use his usual approach of “regressing retail price changes
27 on wholesale price changes,” Opp. at 14, but omits that the same deposition answer confirms that
28 “that’s just not available here.” Ex. 72 (Singer Dep.) 134:24-135:8. Google’s supra-competitive
prices infect the entire period for which data is available, and no wholesale pricing exists given
the two-sided platform structure of the market. *See id.* 138:16-142:13. Dr. Singer therefore turned
to the well-accepted economic models in his report. Ex. 2 (Singer Rpt.) ¶168.

Nor did Dr. Singer simply assume universal pass-through—the model calculates a pass-through rate only if the logit demand explains the variation in the market share data within a category, which Dr. Singer validated. Unlike in *In re Optical Disk Drive Antitrust Litigation*, 303 F.R.D. 311 (N.D. Cal. 2014), Dr. Singer ran regressions to confirm the applicability of the model; he did not merely “assume[] the very proposition” he was trying to prove. *Id.* at 321.

Contrary to Google’s suggestions, Dr. Singer also used real-world data. **First**, Dr. Singer confirmed the applicability of the logit model using Google’s voluminous transaction data. Dr. Singer ran regressions to confirm that real world price changes explained changes in market shares for the applications. Those regressions allowed Dr. Singer to confirm that the demand for the applications within the various Google “app categories” is interdependent—that is, an app’s share within a given category declines with increases in the price of that app. Ex. 2 (Singer Rpt.) ¶¶ 235-38. **Second**, Dr. Singer’s analysis of developers’ reaction to taxes in the real world confirmed cost pass-through. *Id.* ¶ 244. **Third**, Dr. Singer examined (and rejected) the data underlying the flawed analysis of Dr. Burtis. *Id.* ¶¶ 242-44; Ex. 3 (Singer Reply) ¶¶ 112-15.

In short, none of Google’s criticisms of Dr. Singer’s pass-through model undermine its rigor or preclude its use as classwide proof of antitrust impact.

2. App-By-App Analysis Is Not Required to Demonstrate Pass-Through

Dr. Singer’s reliable proof of impact—which as explained above, considers the pass-through rate of each app individually through the application of a well-accepted economic model—means that no further individualized app-by-app analysis is required to prove Plaintiffs’ claims. Google’s argument to the contrary relies on the flawed analysis of its economist, Dr. Burtis. She concluded that when Google applied a limited “service fee” (or take rate) reduction under the market conditions that exist today, pass-through was “rare.” Opp. at 9. Google thus argues that “pass-through must be **proven** for each app.” *Id.* (emphasis in original). But the *Olean* court rejected arguments like these: “[A] district court cannot decline certification merely because it considers plaintiffs’ evidence relating to the common question to be unpersuasive and unlikely to succeed in carrying the plaintiffs’ burden of proof on that issue.” 31 F.4th at 667. Google’s expert unsurprisingly disagrees on the merits, but that is no barrier to class certification. Opp. at 9.

1 In any event, Google’s merits arguments are wrong. Google’s claim that Dr. Singer has
 2 “no answer to real-world evidence showing that prices did not change with service fees,” Opp. at
 3 16, ignores the many fatal flaws in Dr. Burtis’s and the developers’ expert analyses. The one-
 4 month and six-month time horizons used by Dr. Burtis are insufficient to show the long-run effects
 5 of lower prices in the but-for world. Ex. 3 (Singer Reply) ¶¶ 103. Google’s anticompetitive conduct
 6 infected the initial pricing of applications, which economic evidence suggests would linger due to
 7 sticky prices. *Id.* ¶¶ 114-15. Both experts analyzed pass-through after a 2018 price reduction for
 8 second-year subscriptions, but ignored that Google’s pricing rules do not allow developers to sep-
 9 arately discount second-year subscriptions, making pass-through of that price reduction virtually
 10 impossible. *Id.* ¶ 122 & n.248 (citing Ex. 73 (Scalise Dep.) at 269:9-21). Dr. Burtis’s model suffers
 11 from numerous other flaws, including failing to use appropriate controls and using artificially
 12 small product-groups. Ex. 3 (Singer Reply) ¶¶ 102-33.

13 Google cannot paper over those flaws by claiming only its expert uses “actual data.” As
 14 discussed, Dr. Singer employed regression analysis using real-world pricing data to confirm the
 15 applicability of his economic modeling of pass-through.⁴ Google’s mere assertion that pass-
 16 through is “exceptional” is not supported by the factual record. For that reason, the cases Google
 17 cites do not undermine the pertinency of Dr. Singer’s model. *In re Pre-Filled Propane Tank Anti-*
 18 *trust Litig.*, No. 14-02567-MD-W-GAF, 2021 WL 5632089, at *12 (W.D. Mo. Nov. 9, 2021) (ex-
 19 cluding pass-through analysis limited to 3 retailers and less than 10% of total sales); *In re Digital*
 20 *Music Antitrust Litig.*, 321 F.R.D. 64, 94 (S.D.N.Y. 2017) (excluding expert opinion for ignoring
 21 20% of the market and for fatal flaw that “renders his inference from the regression invalid”).

22 The remainder of the individualized factors Google says require further app-by-app analy-
 23 sis are simply recast versions of its *Daubert* arguments. For the same reason those arguments fail
 24 at *Daubert*, they fail to raise individualized issues that defeat class certification.

25 **Marginal Costs.** Dr. Singer’s model does not ignore marginal costs. The peer-reviewed
 26 literature on which Dr. Singer relied for his standard pass-through formula demonstrated that the

27
 28 ⁴ Dr. Singer did not analyze pass-through of Google’s take rate changes against real world data because, as he testified, those changes were too miniscule to allow robust testing. Ex. 72 (Singer Dep.) 138:16-141:12. Dr. Burtis’s analysis of the same data is flawed for that reason.

1 formula is derived mathematically from a profit-maximization model in which marginal cost is a
 2 key component. Ex. 3 (Singer Reply) ¶ 71. Based on that derivation, Dr. Singer calculates pass-
 3 through based on the *change* in each developer’s marginal costs from a reduced take rate. *Id.* ¶ 72.
 4 To argue otherwise, Google relies on the same misconstrued deposition testimony and faulty eco-
 5 nomics it did in its *Daubert* motion. *See Daubert* Opp. at 7-8.⁵ Dr. Burtis opines that pass-through
 6 is “less likely” when a developer’s marginal costs are zero. Ex. 5 (Burtis Rpt.) ¶¶ 142-43; Ex. 3
 7 (Singer Reply) ¶¶ 21-24. Google has pointed to zero evidence that any app developers’ marginal
 8 costs are actually zero. The best it can do is to note that “replication costs” are sometimes zero,
 9 Opp. at 10-11, but as the full deposition answer Google only partially cited notes, replication costs
 10 are merely one type of marginal costs. Ex. 72 (Singer Dep.) 97:19-98:19 (noting it “doesn’t cost
 11 any more to replicate that sword, but that doesn’t mean there aren’t any marginal costs incurred in
 12 the transaction.”). As Dr. Singer demonstrated, developers face numerous other marginal costs like
 13 Google’s take rate, taxes, customer service, and server hosting. Ex. 3 (Singer Reply) ¶¶ 21-25.
 14 Given this unrebutted evidence, analysis of *levels* of developers’ marginal costs is unnecessary.

15 **Focal Point Pricing.** Nor will proof of pass-through require app-by-app inquiry of focal
 16 point pricing as Google contends. Google misleadingly suggests that Dr. Singer conceded that
 17 focal point pricing is an “important consideration” in the but-for world solely by quoting a response
 18 to a question asking whether focal point pricing “explain[s] any developers’ pricing in the *actual*
 19 *world.*” Ex. 72 (Singer Dep.) 202:2-7 (emphasis added). As Dr. Singer explained, developers’
 20 behavior in the face of Google’s restraints are not necessarily predictive of the but-for world. *Id.*
 21 at 197:19-207:6; Ex. 3 (Singer Reply) ¶¶ 26-31. Nonetheless, Google’s transaction data records
 22 over 130 million U.S. transactions at prices that do not end in “99.” Ex. 3 (Singer Reply) ¶¶ 26-
 23 31. As of February 2022, Google reduced the minimum app price from \$0.99 to \$.05 worldwide.
 24 *Id.* ¶ 29 & n.58. Even in the actual world, developers depart from focal point pricing, and Google
 25 itself has eased restrictions which effectively required focal point pricing at the \$0.99 price point.
 26 And Dr. Singer’s model does in fact allow for developers to retain focal-point pricing with price

27
 28 ⁵ Google’s reference to a “standard economic model” that Dr. Singer purportedly chose not to use,
 is an economic model that *cannot* calculate pass-through because it does not provide a method for
 determining a developer’s demand curve. Ex. 72 (Singer Dep.) 106:4-107:22; *Daubert* Opp. at 7.

points ending in 9. Ex. 3 (Singer Reply) ¶ 31. Dr. Singer’s consideration of these factors is sufficient for his model to support certification. *See In re Packaged Seafood Prod. Antitrust Litig.*, 332 F.R.D. 308, 343 (S.D. Cal. 2019) (finding that “[t]he Court is not persuaded” by defendants’ argument that expert “ignored loss-leader and focal point pricing” because the expert “in fact discusses both in his report”), *aff’d on reh’g en banc sub nom. Olean*, 31 F.4th 651.⁶ Dr. Singer’s model reliably considered the role focal point pricing would play in the but-for world.

Competitive Conditions. Google ignores that Dr. Singer’s logit model measures, and controls for, the competitive conditions faced by developers in each of Google’s 35 app categories. Dr. Singer determined that the logit model he employed explained real-world variation in prices and shares within an app category. Ex. 2 (Singer Rpt.) ¶ 238; Ex. 3 (Singer Reply) ¶ 70. In other words, the logit model verifiably described the competitive conditions faced by developers.⁷ It yields the economically intuitive result that a highly concentrated app category where there is less competition will have a low pass-through rate, and an unconcentrated app category where there is more competition will have a high pass-through rate. *Id.* ¶ 73. Dr. Singer’s modeling already accounts for competitive conditions, and no further individualized analysis is required.

“Other Idiosyncratic Factors.” Google’s argument that Dr. Singer failed to consider “other idiosyncratic factors” is another *Daubert* argument that mischaracterizes Dr. Singer’s work. Dr. Singer’s models are agnostic to how developers choose to use the portion of savings not passed through to consumers. Ex. 2 (Singer Rpt.) ¶ 266. Speculation that some developers may spend the remainder of their savings on marketing, improvements to their apps, or in donations to charity neither undermines his pass-through calculation nor requires individualized analysis. *Daubert*

⁶ Google’s cases all involved significantly different evidence of, and theories supporting, focal point pricing. *In re Lithium Ion Batteries Antitrust Litig.*, No. 13-MD-2420 YGR, 2018 WL 1156797, at *3 (N.D. Cal. Mar. 5, 2018) (finding that theory of pass-through based on lower quality to compensate for battery costs in laptops was unsupported by record); *In re Optical Disk Drive Antitrust Litig.*, 303 F.R.D. at 324-25 (finding that pass-through of cost that is “relatively small portion of the cost” of products priced at \$100 increments defeated class certification); *In re Apple iPhone Antitrust Litig.*, No. 11-cv-6714-YGR, 2022 WL 1284104, at *8 (N.D. Cal. Mar. 29, 2022) (finding expert should have considered focal point pricing where record included “overwhelming evidence” of focal point pricing in but-for world, including expert’s own admission).

⁷ While Google is correct that Dr. Singer did not model “which apps in each category are complements and which are substitutes,” Opp. at 12-13, he explained in the same answer that “it’s not necessary to get the implied pass-through rate.” Ex. 72 (Singer Dep.) 159:21-160:1; *see* Dkt. 298 (*Daubert* Opp.) at 13 (further discussing suitability of categories for logit model).

Opp. at 9. In short, Google’s “other idiosyncratic factors” are irrelevant to the determination of whether Plaintiffs have provided a reliable methodology for calculating antitrust injury.

3. Dr. Burtis’s Misguided Claim that There are Uninjured Class Members Does Not Undermine Class Certification

Google’s argument that class members who purchased from only one app may not be injured if that app’s developer did not pass through Google’s supracompetitive costs is just a restatement of Dr. Burtis’s error-riddled analysis that pass-through is “a rare exception.” Opp. at 1. Dr. Singer’s analysis proves otherwise that virtually all class members *have* been harmed. *Supra* I.A.

Moreover, Google’s argument is nearly identical to the argument the Ninth Circuit rejected in *Olean*, 31 F.4th at 669.⁸ There, defendants’ expert argued that 28% of the class was not overcharged. *Id.* at 680. The court found that this fact did not defeat class certification in part because the expert focused on “class members with no or limited transactions during the benchmark period,” and “did not make a factual finding that 28 percent of the [class] ... were uninjured.” *Id.* The same is true here. Dr. Burtis identifies class members who made few purchases but does not identify which apps those individuals purchased or whether those apps would be priced the same in the but-for world. Dr. Burtis can argue at trial that some class members with limited purchases may not be injured, but without more, that cannot defeat class certification. *Id.* at 682. Dr. Singer’s model is reliable evidence of antitrust impact that “each class member could have relied on ... to establish liability if he or she had brought an individual action.” *Id.* at 679-81.

C. Dr. Singer’s Play Points Model Provides Further, Independent Common Proof of Antitrust Impact

Dr. Singer’s Play Points model independently demonstrates antitrust impact through the increased rewards consumers would receive in the but-for world. *See* Ex. 2 (Singer Rpt.) ¶¶ 245-56. Google says that Dr. Singer “assum[ed] away the need to determine the amount of Play Points each consumer would have earned,” Opp. at 19, but Dr. Singer calculated that figure—8.7% of transaction value. Ex. 2 (Singer Rpt.) ¶ 253. The remainder of Google’s argument repeats its

⁸ Google cites footnote 13 of *Olean* throughout its opposition, for the unremarkable proposition that individualized questions about uninjured class members can sometimes defeat class certification. Opp. at 7, 8, 9, 10, 16, 18. The *Olean* court merely recognized that, “on the particular facts of the cases before them,” courts have found that the “need to identify uninjured class members” can predominate. *Olean*, 31 F.4th at 669 n.13. Google never engages with *Olean*’s actual holding.

Daubert contentions that Dr. Singer failed to model how many class members would sign up for and use Play Points in the but-for world. First, whether consumers spend the points or value them differently is irrelevant to class certification. *In re Optical Disk Drive Antitrust Litig.*, No. 3:10-md-2143 RS, 2016 WL 467444, at *9 (N.D. Cal., Feb. 8, 2016) (“Defendants’ focus on the subjective desires of individual consumers is misplaced, and is not supported by legal precedent requiring any such approach.”). Unspent Play Points have intrinsic value, Ex. 3 (Singer Reply) ¶ 99, and the loss of consumer subsidies shows common impact. Second, Google’s current opt-in model and relatively low participation rates do not mean Dr. Singer must model participation in the but-for world. Current participation rates are attributable to the limited Play Points program—subsidies average per transaction because Google’s anticompetitive conduct shields it from real competition, and therefore the need to attract consumers to its store. Ex. 72 (Singer Dep.) at 293:21-294:9, 297:8-21; Ex. 3 (Singer Reply) ¶ 98; *Daubert* Opp. at 3-4 (discussing same arguments).

D. Class Members Will Not Be Worse Off In the But-For World

Google speculates that some class members will be worse off in the but-for world, thereby defeating common impact, because Google would degrade its own services and features in the face of competition. Those self-serving merits arguments run contrary to basic economics, Google’s own business model, and the facts in the record.

To begin, it defies belief that Google would respond to competition by or degrading security. *See* Mot. at 23-24. Basic economics teaches that “as competition increases, firms compete more vigorously for customers on all dimensions.” *Id.* (quoting Ex. 3 (Singer Reply) ¶ 64.)

Moreover, Google’s opposition severely overstates the extent to which the but-for world would deprive Google of revenue for its services. Opp. at 19. Dr. Singer models that Google would retain a 60% market share resulting in in profit in 2020 and in 2021 from its but-for take rates alone. Ex. 2 (Singer Rpt.) ¶¶ 219, 269. Google also ignores its substantial advertising revenue from ads placed in the Play Store, bringing Google Play’s but-for profits up to in 2020 and in 2021. *Id.* ¶ 269. These substantial figures don’t account for the other significant revenues Google earns from advertising on its own and others’ apps and

1 products on Android. *Id.* ¶ 271. Google would risk these substantial revenues if it started providing
2 a lower quality product or charging consumers for services that have always been free.

3 Separately, Google has consistently rejected the measures Dr. Burtis claims it would take.
4 Mot. at 23-24.

5 would run counter to Google’s core business strategies across all of its products. Google
6 consistently offers free access to its products (including Search, Gmail, Maps, YouTube, and oth-
7 ers). Google recognizes that free apps “make[] Android more successful as an operating system”
8 and “Android is important to Google.” *See* Ex. 70 (Rosenberg Dep.) 410:8-413:14. The economic
9 evidence shows that Google would not depart from its core business model, but to the extent
10 Google wants to argue otherwise, that is an issue for the merits. *See In re Live Concert Antitrust*
11 *Litig.*, 247 F.R.D. 98, 143-44 (C.D. Cal. 2007) (rejecting, at class certification, arguments based
12 on defendants’ expert report, including claim that some class members would have been worse off
13 in the but-for world, “because they relate to the merits”).

14 Here, all consumers would be better off if there were competition.⁹ The benefits to con-
15 sumers that Google touts (security protections and free access to a store) are unrelated to its exclu-
16 sionary conduct. Google simply argues that if its exclusionary conduct is barred, it will degrade its
17 products rather than competing by improving its offerings. That is contrary to the facts and to well-
18 established economic principles. Ex. 3 (Singer Reply) ¶ 2 n.3; *cf. Kamakahi v. Am. Society for*
19 *Reproductive Med.*, 305 F.R.D. 164, 193 (N.D. Cal. 2015) (rejecting defendants’ argument that
20 substitution in the but-for world defeats class certification because the Ninth Circuit “does not
21 favor denial of class certification on the basis of speculative conflicts” among the class).

22 **E. Dr. Singer Provides a Common Method of Calculating Damages**

23 For the same reasons that Dr. Singer’s economic models provide common proof of antitrust
24 impact, those models provide a classwide means of calculating damages. Google provides no in-
25 dependent argument for this point, simply restating the same mischaracterization of a “standard
26 economic model” in Dr. Singer’s report. *See* Opp. at 22 & n.16; *supra* n.7. Even if some

27 ⁹ Google relies upon *Allied Orthopedic Appliances, Inc. v. Tyco Healthcare Group L.P.*, 247
28 F.R.D. 156 (C.D. Cal. 2007), a case in which some class members received “discounts and deals
on Tyco products” as a result of the exclusionary contracts “that would be *unavailable to them in*
the but-for world.” *Id.* at 168-70 (emphasis in original).

individualized damages determinations were required, “there is no per se rule that a district court is precluded from certifying a class if plaintiffs may have to prove individualized damages at trial,” and Google has made no effort to make a showing why this case is different. *Olean*, 31 F.4th 651, 681-82.¹⁰ Damages calculations are no barrier to class certification.¹¹

II. An Injunctive Relief Class Is Justified Under Rule 23(b)(2)

Google argues that Rule 23(b)(2) has not been satisfied because: (1) Plaintiffs have not adequately described the injunction, (2) Plaintiffs have not shown that all class members are injured, and (3) an injunction would harm some class members. Each argument fails.

First, Rule 23(b)(2) will “ordinarily” be met “when plaintiffs have described the general contours of an injunction ... that can be given greater substance and specificity at an appropriate stage in the litigation.” *B.K. by next friend Tinsley v. Snyder*, 922 F.3d 957, 972 (9th Cir. 2019). Moreover, Rule 23(b)(2) is met when “class members complain of a pattern or practice that is generally applicable to the class as a whole.” *Mueller v. Puritan’s Pride, Inc.*, No. 3:16-cv-06717-JD, 2021 WL 5494254, at *8 (N.D. Cal. Nov. 23, 2021) (*quoting Walters v. Reno*, 145 F.3d 1032, 1047 (9th Cir. 1998)). Consumers have satisfied these standards. The Complaint alleges in detail the anticompetitive conduct that Plaintiffs seek to end. Dkt. 241 ¶¶ 4, 6-11, 14-22. Plaintiffs’ expert reports also set forth at length conduct ripe for injunctive relief, including, but not limited to, removing technical barriers to other app stores; Ex. 2 (Singer Rpt.) ¶¶ 95-96; Ex. 4 (Schmidt Rpt.) ¶¶ 27-41; removing the tie requiring Google Play Billing for in-app transactions; Ex. 2 (Singer Rpt.) ¶¶ 27-29, 31; and permitting developers to steer consumers to other platforms; *id.* ¶¶ 169-75.

There is no merit to Google’s related argument that monetary relief predominates over injunctive relief for the 23(b)(2) class. Monetary damages are sought only for a separate 23(b)(3)

¹⁰ Here, as elsewhere, Google relies on a footnote in *Olean* while ignoring the holding. *See* Opp. at 22 (quoting *Olean*, 31 F.4th at 682 n.31). Google’s brief separately quotes *Olean* for the proposition that “the complexity of damages calculations ... defeat[s] predominance.” Opp. at 21 (quoting *Olean* 31 F.4th at 681). The court actually said: “[T]he Tuna Suppliers have not argued that the complexity of damages calculations would defeat predominance here.” 31 F.4th at 681. Plaintiffs respectfully submit that Google’s quotation does not comport with paragraph 23 of this Court’s Standing Order for Civil Cases.

¹¹ Google briefly argues that the proposed class’s limitation to 17 states and territories would introduce individualized issues as to the residence of each class member, Opp. at 8, but its own data includes billing addresses, allowing mechanical determinations of each class member’s residence.

class. “District courts may certify both a 23(b)(2) class for the portion of the case concerning injunctive and declaratory relief and a 23(b)(3) class for the portion of the case requesting monetary damages.” *Buchanan v. Tata Consultancy Servs., Ltd.*, No. 15-CV-01696-YGR, 2017 WL 6611653, at *23 (N.D. Cal. Dec. 27, 2017); *see also MacRae v. HCR Manor Care Services, LLC*, No. SA CV 14-00715-DOC (RNBx), 2018 WL 8064088, at *8 (C.D. Cal. Dec. 10, 2018).

Second, Google’s argument that 23(b)(2) class members who made no purchase are unharmed is flawed. Google’s anticompetitive conduct harms all users by reducing output and eliminating consumer choice. Google has foreclosed consumers’ ability to download apps from competitors, and its fees have restricted the growth and improvement of apps. *See* Ex. 2 (Singer Rpt.) ¶¶ 54-166, 257-67. Each member of the proposed 23(b)(2) class is a current Android user, is subject to ongoing antitrust violations, and would benefit from injunctive relief. Google’s cases concerning past users are inapposite. *See* Opp. at 25 (citing *Berni & Barilla S.p.A.*, 964 F.3d 141, 147 n.28 & 148 (2d Cir. 2020) (finding prospective relief would not redress class members with only past harms); *In re Suboxone Antitrust Litig.*, 421 F. Supp. 3d 12, 70 (E.D. Pa. 2019) (same)).

Third, Google’s contention that users who download free apps would be harmed by injunctive relief is a merit-based issue and should not defeat class certification. As noted, *supra* Part I.D, Google’s parade of horrors that would accompany its loss of monopoly power is self-serving speculation at best. To the extent class members have benefited from Google Play, those benefits did not flow from the challenged anticompetitive conduct. The 23(b)(2) class should be certified.

III. All Four of the Rule 23(a) Factors Are Met

Consumers have established that each Rule 23(a) factor is met. There is no dispute that numerosity, commonality, and typicality have been established. *See* Opp. at 4 (conceding there are “21 million putative class members”); Mot. at 4-13, 14-15 (identifying numerous common questions); Mot. at 15 (establishing typicality). Indeed, Google’s opposition mentions these factors only in its recitation of the legal standard. Opp. at 6.

Google generally does not dispute the adequacy of the class representatives and class counsel either. Near the end of its brief, however, Google argues that the Joint Prosecution Agreement signed by the Court-appointed Steering Committee and 39 State Attorneys General creates

1 conflicts of interest for class counsel. But this argument is meritless. The JPA does not create any
 2 conflicts of interest. It merely represents a recognition by the State AGs that class counsel per-
 3 formed considerable work for the benefit of consumers in *all states* prior to the State AGs bringing
 4 their claims,¹² and that the significant work class counsel continue to perform for the benefit of the
 5 proposed class likewise inures to the benefit of consumers in *all states*. See Ex. 1 (JPA).

6 The JPA recognizes that class counsel can request fees from a common fund for work they
 7 perform that benefits plaintiffs other than the proposed class. This is entirely consistent with
 8 longstanding jurisprudence on attorneys’ fees for common funds. See, e.g., *Boeing Co. v. Van*
 9 *Gemert*, 444 U.S. 472, 478 (1980) (“[T]his Court has recognized consistently that a litigant or a
 10 lawyer who recovers a common fund for the benefit of persons other than himself or his client is
 11 entitled to a reasonable attorney’s fee from the fund as a whole”); *Paul, Johnson, Alston & Hunt*
 12 *v. Grauly*, 886 F.2d 268, 271 (9th Cir. 1989) (“[I]t is well settled that the lawyer who creates a
 13 common fund is allowed an *extra* reward, beyond that which he has arranged with his client....”).
 14 Regardless, the Court will determine any fee award. *In re FPI/Agretech Sec. Litig.*, 105 F.3d 469,
 15 474 (9th Cir. 1997) (affirming fee award to law firm who tried case, rather than to counsel who
 16 had stopped work despite “Joint Prosecution Agreement” requiring fees to be split).

17 And there is nothing unusual or inappropriate in class counsel seeking fees for work that
 18 benefits a common fund performed in cooperation with state attorneys general. For example, in *In*
 19 *re Electronic Books Antitrust Litigation*, class counsel represented consumers in certain states in
 20 parallel with attorneys general representing consumers in other states under their *parens patriae*
 21 authority. Class counsel made a fee application over a common fund created for all consumers
 22 who benefited from the settlement and the application was approved. See *In re Electronic Books*
 23 *Antitrust Litig.*, Case No. 11-md-02293 (DLC) (S.D.N.Y.) at Dkt. 685 (order approving class coun-
 24 sel fee application in connection with settlement agreement including plaintiff states), & at Dkt.
 25 667 (class counsel’s fee declaration detailing coordinated work effort with counsel for plaintiff
 26 states). Close cooperation between class counsel and state attorneys general toward common ob-
 27 jectives *benefits* consumers through more effective and efficient work. It should be encouraged,

28 ¹² Class counsel filed their Complaint on behalf of consumers in all states 11 months before the
 State AGs brought overlapping *parens patriae* claims for consumers in 39 of the states.

1 not attacked. The JPA *avoids* a scenario in which class counsel and the States would be pursuing
2 largely the same claims for the same relief on behalf of the same individuals.

3 Google also argues that class counsel have an interest in keeping the case alive as long as
4 possible, because “counsel’s ability to keep earning fees depends on the **absence** of a settlement.”
5 Opp. at 22-23. But class counsel are not being paid by the hour; their fees are entirely at risk. So
6 their interests are aligned with class members as they have every incentive to recommend a timely,
7 favorable settlement to the class representatives, and, ultimately, for court approval.

8 Google is mistaken in its assertion that four plaintiffs cannot serve as class representatives
9 based on their residence.¹³ These plaintiffs have, in essence, opted out of the States’ action to serve
10 as class representatives. *See* 15 U.S.C. § 15c(b)(2). Just as class representatives often represent
11 residents of other states in federal antitrust actions, there is nothing unusual about this arrangement.
12 Nonetheless, the interests of the proposed class do not differ from the claims of consumers in other
13 states, and consumers nationwide have the same interests and the same incentives, regardless of
14 who is representing them. Therefore, class counsel’s representation of these clients creates no con-
15 flict even if some individual plaintiffs were not class members. “In general, class counsel may
16 represent multiple sets of litigants—whether in the same action or in a related proceeding—so long
17 as the litigants’ interests are not inherently opposed.” *Newberg on Class Actions* § 3:75; *see also*
18 *Sandoval v. M1 Auto Collisions Ctrs.*, 309 F.R.D. 549, 570 (N.D. Cal. 2015) (denying motion to
19 disqualify counsel for representing classes in separate proceedings).

20 At best, Google raises highly speculative arguments that the JPA “creates conflicts,” but
21 “[t]he mere potential for a conflict of interest in not sufficient to defeat class certification,” and
22 certification should not be denied “on the basis of speculative conflicts.” *In re Online DVD Rental*
23 *Antitrust Litig.*, No. M 09-2029 PJH, 2010 WL 5396064, at *4 (N.D. Cal. Dec. 23, 2010) (*quoting*
24 *Cummings v. Connell*, 316 F.3d 886, 896 (9th Cir. 2003)). Class counsel are experienced and well-
25 suited to represent the consumer class. Google’s attack on their adequacy should be rejected.

26 CONCLUSION

27 For the foregoing reasons, the Court should certify both classes under Rule 23.

28 ¹³ Two class representatives (Atkinson and Iwamoto) reside in class states. Dkt. 241 ¶¶ 27-28.

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing was served on July 14, 2022 upon all counsel of record via the Court's electronic notification system.

/s/ Karma M. Giulianelli

REDACTED VERSION

Exhibit A50 to C. Cramer Declaration

EXHIBIT 70

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Page 1

1 ** H I G H L Y C O N F I D E N T I A L **

2 UNITED STATES DISTRICT COURT

3 FOR THE NORTHERN DISTRICT OF CALIFORNIA

4 SAN FRANCISCO DIVISION

5 Case No. 3:21-md-02981-JD

6 -----X

7 IN RE GOOGLE PLAY STORE

8 ANTITRUST LITIGATION

9 THIS DOCUMENT RELATES TO:

10 Epic Games Inc. v. Google LLC, et al.,

11 Case No: 3:20-cv-05671-JD

12 In re Google Play Consumer

13 Antitrust Litigation,

14 Case No: 3:20-cv-05761-JD

15 In re Google Play Developer

16 Antitrust Litigation,

17 Case No: 3:20-cv-05792-JD

18 State of Utah, et al.,

19 v. Google LLC, et al.,

20 Case No: 3:21-cv-05227-JD

21 -----X

22 February 10, 2022

23 9:04 a.m.

24 Videotaped Deposition of JAMIE

25 ROSENBERG, taken by Plaintiffs, pursuant to

Notice, held via Zoom videoconference,

before Todd DeSimone, a Registered

Professional Reporter and Notary Public.

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Page 2

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3 KATE SMITH, ESQ., Google

4 STEPHEN KENT, Videographer

5 PAUL RAFFERTY, Veritext Concierge Tech

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1 all the engineering resources to create
2 this new product, the money we were
3 proposing to invest, you know, if the net
4 effect wasn't going to be to improve the
5 user experience or improve the developer
6 experience, then it wasn't going to be, you
7 know, a worthwhile project for us to
8 undertake.

9 Q. And one thing that it meant was
10 developers playing [REDACTED] and Google off
11 against one another to get a better revenue
12 share deal, right?

13 A. It could -- it could have been
14 that, although, you know, that's typically
15 not how we manage our revenue share. We
16 have a published -- a published policy, but
17 it could, you know, more commonly be
18 around, you know, promotional
19 consideration, exclusivity, you know,
20 access to technical features, those types
21 of things as well.

22 Q. Now, you referred a couple of
23 times to the fact that you have a published
24 policy with respect to the revenue share
25 deal. Does that mean that you don't

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1 typically negotiate individually with
2 developers on the rev share?

3 A. Typically that's right. We
4 have done some programs for certain
5 categories of developers with certain goals
6 for those programs and defined criteria,
7 but typically we don't, outside the context
8 of those programs, wouldn't be negotiating
9 it individually with developers on rev
10 share.

11 Q. Why not?

12 A. I think it was a principle of
13 ours to have, you know, an understood --
14 understood and kind of fair articulation of
15 our model to the ecosystem. We had -- we
16 had interest in advancing the ecosystem as
17 a collective, and so that was a principle
18 from the beginning.

19 Q. And does that remain a
20 principle of Google's today as well?

21 A. Presumably, like I said, I'm
22 less close to it in the past few years,
23 but, you know, at the time it was.

24 Q. Okay. Now, going back to this
25 Exhibit 785, and I'm looking at the bottom

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1 Google Play came many years later.

2 Q. And when you say that the focus
3 of the business model was on participating
4 in transactions of digital goods, what is
5 that referring to?

6 A. That refers to the revenue
7 share model associated with purchases.

8 Q. Okay. And it's fair to say
9 that many applications that are offered in
10 the store are -- there is no revenue share
11 associated with many of them because they
12 are distributed for free and people don't
13 buy anything for some -- for many
14 applications?

15 MR. POMERANTZ: Objection to
16 the form.

17 A. That's true. I think for more
18 than -- more than 90 percent of the apps in
19 the store, there is -- there is no cost to
20 the developer for distribution other than
21 the fee of signing up to the store.

22 Q. More than 90 percent of
23 applications in the store even today are
24 free and do not offer any in-app purchases
25 of digital goods, right?

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1 A. I believe that's true.

2 Q. Around that, around that
3 number, I'm not trying to hold you to 90
4 percent versus 91, but it is a substantial
5 number?

6 A. Yes.

7 Q. And Google's business model
8 continues to include distribution of many
9 of those applications for which it will
10 never get paid other than the initial
11 developer fee, right?

12 MR. POMERANTZ: Objection to
13 the form.

14 A. So I don't necessarily agree
15 with the characterization that that's part
16 of our business model. As I talked about
17 before, we feel an obligation to cultivate
18 the entire app ecosystem for Android and
19 make the platform available to developers
20 of all types, with all types of apps,
21 including developers that make apps that
22 are free.

23 So, you know, we have invested
24 in building out the scale to be able to do
25 that and support any and all developers,

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1 whether they charge in their apps or not.
2 But the business model we chose was to
3 participate when there is a charge for a
4 digital good in that.

5 Q. And how does making the
6 platform available to even developers who
7 offer their apps for free help Google?

8 A. Well, making the platform
9 available to developers who offer the apps
10 for free makes Android more successful as
11 an operating system. It provides more
12 functionality to end users of an Android
13 device. Android is important to Google.
14 We want to see Android be successful. So
15 supporting the broadest possible collection
16 of apps we think is good for Android.

17 Q. And what benefits does Google
18 get from the success of Android?

19 A. The success of -- well, Android
20 brings -- brings a smart device operating
21 system to billions of devices around the
22 world. To the extent those devices are
23 connected to the internet and able to do
24 internet things, that's good for Google.
25 More people engaging with Google over the

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1 internet is good for our desire to grow our
2 services and make them successful and
3 helpful.

4 Q. And those services include the
5 services that Google provides with respect
6 to search, correct?

7 A. Search, e-mail, maps, YouTube,
8 you know, many things at Google depend on
9 users having a device that is connected to
10 the internet and performs well.

11 Q. And many of those things are
12 revenue generating for Google, such as
13 search and advertising, right?

14 A. Some of them are, yes.

15 MS. GIULIANELLI: I don't have
16 any other questions. Thank you for your
17 time. You have been very gracious.

18 MR. EVEN: I actually have a
19 couple of more, if I may. Not to suggest
20 that you have not been gracious.

21 EXAMINATION BY MR. EVEN:

22 Q. So I have a couple of things to
23 ask you. One is earlier today you
24 discussed the issue of fragmentation with
25 Ms. Giulianelli. Do you remember that?

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CERTIFICATION

I, TODD DeSIMONE, a Notary Public for
and within the State of New York, do hereby
certify:

That the witness whose testimony as
herein set forth, was duly sworn by me; and
that the within transcript is a true record
of the testimony given by said witness.

I further certify that I am not related
to any of the parties to this action by
blood or marriage, and that I am in no way
interested in the outcome of this matter.

IN WITNESS WHEREOF, I have hereunto set
my hand this 11th day of February, 2022.



TODD DESIMONE

REDACTED VERSION

Exhibit A51 to C. Cramer Declaration

EXHIBIT 71


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Upfront questions

1. Who is Play's customer?
2. What value does the

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 Google Play

Who is our Play's monetized customer?


Current monetized customer: Developers with in-app, digital goods purchases

Out of scope developers:

- a. Offer in-app purchases for physical goods (Uber, Amazon)
- b. Monetize via in-app ads (Facebook, Pinterest)
- c. Don't monetize at all (Samsung Messages)
- d. SDKs

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Id	Date	Text
1	04/25/2019 21:04:49	+ Premium apps
		

What Developers value vs Play's offering

What Developers Value	Pre-installs (OEM apps)	Non-monetizing (Facebook)	Apps with in-app purchase, physical goods (Amazon, Uber)	Apps with in-app purchase, digital goods (Clash of Clans, Pandora)
% of all active installs on Android (Ballpark)				
User Acquisition & Distribution				
App servicing (Play Protect, App Updates)				
Engagement				
Basic monetization services for in-app purchases				
== Monetization (Acorn Hold, Wolverine)				

Play does not offer a solution to this type of dev

Play offers a solution

Play monetizes

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What is the value for Play customers?

All of the developers who are *out-of-scope* for GPB receive the benefits of:

1. Play's distribution network across 2.6B Android devices
2. Play Protect
3. Play Console tools (Beta testing, pre-launch reporting, store listing experiments)
4. App updates

Apps required to use GPB get the following value:

1. Secure payment platform
2. Access to market-specific FOPs such as DCB, Gift cards
3. New features such as Account Hold, Wolverine, Free Trials etc.
4. Billing customer service

Value received for free appears to be much larger than value paid for

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What is our cost to deliver the value of Google Play to developers?

- Transaction costs on GPB: [REDACTED] rev share is break-even cost (weighted avg FOP transaction cost, includes customer service + infrastructure costs)
- Fixed costs: unclear how to assess costs for Play Console & app distribution/management across Android fleet

Transactions are potentially incorrect. Use with caution

FOP Type	Cost per transaction
Credit Card	[REDACTED]
Gift Card	
PayPal	
DCB Total	
US	
BR	
MX	
FR	
GB	
Others	

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What is our strategy for GPB?

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What is our **strategy** for Play and GPB?

- Do we view GPB as only a solution for in-app, digital payments only?
- How do we think about developers who are *out-of-scope* for GPB, but getting a ton of benefit from Play (distribution, app development tools, security)?

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Potential new models for consideration

2 types:

1. Tweaks to existing rev share business model
2. Wholly new business models

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New Business Model

[REDACTED] based business model

by devs [REDACTED] reflecting value of [REDACTED]

Pros	Cons	Impact*
<ul style="list-style-type: none"> [REDACTED] [REDACTED] [REDACTED] Easy to understand -- [REDACTED] 50% discount vs iOS rev share, aligns with LTV Renders GPB no longer a focal point 	<ul style="list-style-type: none"> Introduces dis-incentive for [REDACTED] Changes economics of existing business models-- [REDACTED] Treats all app updates/installs equally, [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] 	<ul style="list-style-type: none"> Google's apps account for [REDACTED] of all app updates/active installs, so Google gets a [REDACTED] bill [REDACTED] Economics come out to [REDACTED] per active install

unlikely if [REDACTED] revenue from GPB rev share, proportionally allocated based on active device installs/updates

[REDACTED] did not account for how install was acquired

* Assumes [REDACTED] rev share (breakeven) on in-app digital transactions

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Google Play

New Business Model

Rev share on [REDACTED]

Rev share on all in-app commerce, not just digital goods

Pros	Cons	Impact**
<ul style="list-style-type: none"> ■ [REDACTED] ■ [REDACTED] ■ [REDACTED] ■ [REDACTED] ■ [REDACTED] ■ Provides secure payment solution for [REDACTED] transactions ■ Generates many new FOPs / NPU 	<ul style="list-style-type: none"> ■ Will likely face severe backlash from [REDACTED] ■ [REDACTED] ■ Internally politically disastrous ■ Likely pushes payments to mWeb from in-app ■ Provides disincentive to invest in Android vs iOS app ■ DCB not an issue for [REDACTED] 	<ul style="list-style-type: none"> ■ ~1B new FOPs generated on Android ■ Potential for strong new revenue growth due to business

[REDACTED] potentially scope in ads, though would be very very difficult
 ** Rev share model is very TBD

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Google Play

Keep rev share @ 30%

Changes to existing model

Pros

- Consistent, easy
- Aligns with iOS

Cons


- No rationale, other than copying Apple
- Already showing as untenable for many apps/games developers
- Only applicable to developers who use in-app digital goods

Impact

- impact on 2018 consumer spend if
- Impending subscription dev "apocalypse"

-many devs do not see economics working on Android vs

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Change to █████ rev share

New rev share is █████

Changes to existing model

Pros

- Brings Play rev share in-line with upper end of █████ stores
- 50% discount vs iOS rev share, which accounts for lower user LTV on Play vs iOS


Cons

- No rationale for █████ vs any other number other than competitive benchmark ([link](#))
- Unclear if █████ retains future Fortnites/Netflixs
- Only applicable to developers who use in-app digital goods

Impact

- █████ in revenue impact on 2018 consumer spend
- (likely extreme case, as it does not account for increased volume of purchases at lower rev share)

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Changes to existing model

Creates an [redacted] to support diverse ecosystem and fledgling startups

Pros

- Gives [redacted] creators a break, fighting narrative that small creators will struggle on Play
- Brings Play rev share in-line with upper end of [redacted] stores
- 50% discount vs iOS rev share, aligns with LTV


Cons

- May upset larger devs that they get no break (unlike [redacted])
- No rationale for [redacted] vs any other number other than competitive benchmark ([link](#))
- Unclear if [redacted] retains future Fortnites/Netflixs
- Only applicable to developers who use in-app digital goods

Impact

- [redacted] in revenue impact on 2018 consumer spend ([redacted] impact for indie-carve out. [redacted] for overall rev share decrease to [redacted])
- *(likely extreme case, as it does not account for increased volume of purchases at lower rev share)*

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<div>Changes to existing model</div> <div></div>		
<div>Pros</div> <ul style="list-style-type: none">Clear in regions where DCB & store credit is meaningfulShowcases power of GPB (DCB is of commerce, Store Credit globally)	<div>Cons</div> <ul style="list-style-type: none">Creates incentive for devs to steer users towards cheaper FOPsFOP rev shares not too dissimilar -- for CC, for DCB for gift cards)Penalizes devs focused on DCB / emerging markets, as they'd pay higher rates for already lower LTV usersPotentially stronger <div>PROVIDES AND COORDINATES NBU</div>	<div>Impact**</div> <ul style="list-style-type: none">Requires direction on if we are OK with lower revenueVery TBD on how would price margin for FOPs

Google Play


New Business Model

GPB becomes non-exclusive-- allow 3rd party payments

GPB begins to compete on price/services for business across digital and non-digital goods

Pros	Cons	Impact**
<ul style="list-style-type: none">— Promotes competition— Showcases GPB's billing success and global footprint-- DCB and credits are already available— Provides a native, secure payment solution for physical goods	<ul style="list-style-type: none">— Apple could offer a billing alternative on Android— Likely "race to the bottom" on pricing vs Stripe, competitors— DCB not an issue for physical goods today	<ul style="list-style-type: none">— xxxM New FOPs— Strong new revenue source, or huge negative impact on revenue, depending on adoption/disintegration

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Others?



Appendix

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Competitive Rev Share Landscape

Game Stores

[Discord](#) 90-10

[Epic](#) 83-12 (Note: if a developer publishes on the Epic store they will waive the 5% fee initially associated with using UE4)

[Steam](#) 70-30 <\$10M; 75-25 <\$50M; 80-20 >\$50M

[Kartridge](#) 100-0 \$<=10k; 70-30 >\$10k

[Facebook Instant Games](#) 70-30

He opened by explaining Steam's reasoning: that bigger games are more valuable to Steam and bring more people to the platform, therefore Valve is willing to 'pay more' for them.

○ Samsung Store -- 70/30 for non-"Galaxy Store Partners", 80/20 for Galaxy Store Partners -- also able to mutually agree on a new rev share

○ Cloud -- usage based

○ Amazon -- 8%-15% for sellers on Amazon.com (physical goods), based on category

○ Garena/LINE off-store consumer purchases

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Exhibit A52 to C. Cramer Declaration

EXHIBIT 72

FILED UNDER SEAL

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN FRANCISCO DIVISION

4 -----X
5 IN RE GOOGLE PLAY STORE
6 ANTITRUST LITIGATION
7 Case No. 3:21-md-02981-JD

8 THIS DOCUMENT RELATES TO:
9 Epic Games Inc. v. Google LLC, et al.,
10 Case No. 3:20-cv-05671-JD

11 In Re Google Play Consumer
12 Antitrust Litigation
13 Case No. 3:20-cv-05671-JD

14 In Re Google Play Developer
15 Antitrust Litigation,
16 Case No: 3:20-cv-05792-JD

17 State of Utah, et al., v.
18 Google LLC, et al.,
19 Case No: 3:21-cv-05227-JD

20 -----X

21 VIDEOTAPE DEPOSITION
22 HAL SINGER, PH.D.
23 Thursday, May 12, 2022
24 9:07 a.m. (EST)

25 Reported by:
Ryan K. Black, RPR, CLR, Notary Public

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Thursday, May 12, 2022

Video Deposition of HAL SINGER, PH.D.,
taken at the Law Offices of Munger, Tolles &
Olson, LLP, 601 Massachusetts Avenue NW
Washington, DC, beginning at 9:07 a.m.,
before Ryan K. Black, a Registered
Professional Reporter, Certified Livenote
Reporter and Notary Public and for the
District of Columbia.

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Kevin Caves, Ph.D - Econ One

1 THE WITNESS: Thanks.

2 BY MR. RAPHAEL:

3 Q. Do you see Exhibit 335, Dr. Singer?

4 A. I do.

5 Q. And what is it?

6 A. It -- it appears to be the article that
7 I cited.

8 Q. That's the "Digital Economics" article
9 by Tucker and Goldfarb?

10 A. Yes.

11 Q. And -- and could you go to Page 12 of
12 the article?

13 A. If you'd let me just -- one second. I'd
14 -- I'd like to just read the abstract quickly.

15 Q. Would you go to Page 12, please?

16 A. Hold on one second.

17 Okay. Page 12.

18 Okay.

19 Q. Do you see at -- further down, say,
20 two-thirds of the way down in the left column,
21 there's a header that says, "The replication cost
22 of digital goods is zero"?

23 A. Yes.

24 Q. So this article that you relied on in
25 your report says that "The replication costs of

1 digital goods is zero," correct?

2 A. Correct.

3 Q. Now, are you familiar with V-Bucks?

4 A. Oh. Can I put this to the side?

5 Q. For now, yes.

6 A. Yeah.

7 And I would just note for the record
8 that replication costs and marginal costs are not
9 the same.

10 Q. Well, how are they different?

11 A. Oh. What -- what Goldfarb is not taking
12 into consideration here is that to sell the extra
13 unit you have to pay a processing fee. That's a
14 marginal cost.

15 So it's true that to create the next
16 sword -- the 150th sword doesn't cost any more to
17 replicate that sword, but that doesn't mean there
18 aren't any marginal costs incurred in the
19 transaction.

20 Q. Understood.

21 All right. Could some developers have
22 negative marginal costs for in-app purchases?

23 A. It's hard to -- to fathom that.

24 Q. What if a developer generates
25 advertising revenue as the result of an in-app

1 by E sub D."

2 Do you see that?

3 A. Yes. That's the classic Lerner markup.

4 Q. Right. So that's -- that's the proper
5 economic model for how a profit maximizing
6 developer would set prices based on marginal
7 costs, right?

8 A. That model describes the markup over
9 marginal cost as the function of the elasticity
10 of demand faced by the developer.

11 Q. Right. And -- and this model on Page
12 104 of your opening report, that -- that's --

13 A. So --

14 Q. -- the correct economic mod -- economic
15 way to model how the change in marginal costs
16 will affect the price that the developer charges.

17 A. It's the -- it's the way to think
18 about it at -- at a very, very high level of
19 abstraction. But, as you know, to actually
20 estimate the pass-through rate here, I have to
21 make an assumption about the demands curve and --
22 and -- and the precise nature of demand that a --
23 the developer faces, right?

24 Once you --

25 Q. Understood.

1 A. -- make a -- once you make that
2 decision, you get these pass-through rules,
3 right? And the pass-through rules -- whether you
4 go linear or logit or -- or constant elasticity
5 -- are going to express pass-through as a
6 function of things that do not include the
7 marginal cost.

8 Q. Understood. But this formula on Page
9 104 of your report is the correct economic way to
10 model the relationship between the developer's
11 price and the marginal cost in general?

12 A. Well, I just want to put that caveat in
13 there. It's the -- it's the -- definitely the
14 way to think about it and why it's in my
15 preamble, right?

16 But when I go to model the precise
17 amount of pass-through, I have to make an
18 assumption about what kind of demand the
19 developer faces, right? And that -- that puts
20 me to a -- takes me to a pass-through rule that
21 isn't necessarily going to be denominated in
22 terms of costs.

23 Q. Understood. So -- but -- but this mod
24 -- this economic model you've described in Page
25 104 of your report, that's generally accepted in

1 logit demand system?

2 A. Cor --

3 Q. Equation 6.

4 A. Correct.

5 Q. Yeah. And just to make sure I
6 understand what you did, you -- you then ran a
7 regression to test whether the structure of
8 demand for apps was logit.

9 A. I think that's fair, that I -- I did try
10 to assess which demand assumption best explained
11 the patterns in the data.

12 Q. Okay. Now -- and then you took the
13 formula from that Miller article -- after you ran
14 the regression to test the logit demand, you took
15 that formula and you calculated pass-through
16 rates for each category of apps in the Google
17 Play store?

18 A. Correct. It begins at the app level,
19 and it's aggregated up to the category. But,
20 yes, ultimately I wanted a -- I wanted a
21 pass-through rate for the category.

22 Q. Right. Did you calculate pass-through
23 rates for any individual app?

24 A. Yes. You have to. On your way to get
25 to the category, you have to.

1 period.

2 BY MR. RAPHAEL:

3 Q. But the pass-through formula you have
4 would predict changes in the pass-through rate
5 from week to week or month to month if the share
6 changes. Fair?

7 A. If one were so inclined to measure it on
8 -- on a monthly or nanosecond basis, yes, you
9 could get very strange results.

10 Q. Okay. Could the formula you've got
11 here, the "M minus Q sub J divided by M," could
12 that be used to calculate pass-through rates in
13 any case where you know the unit market share of
14 an intermediary alleged to have passed on an
15 overcharge?

16 A. I -- I -- I'd be reluctant to say that
17 the logit model could be applied to any case.
18 I'd want to confirm, first, as I did here, that
19 the logit model does a good job explaining the
20 relationship between prices and shares, as it
21 does here.

22 So I think you need some empirical
23 foundation before applying the logit model.
24 I think that would be a good -- good practice.

25 Q. Okay. Have you used the formula that

1 you used to calculate pass-through in this case
2 to calculate pass-through in any other case?

3 A. I do not believe I have. In other
4 cases, what I'm typically doing is regressing
5 retail price changes on wholesale price changes.

6 Q. Okay.

7 A. And that -- that's just not available
8 here.

9 Q. All right. To your knowledge, has
10 any economist used the formula you've used to
11 calculate pass-through in this case to calculate
12 pass-through in some other case?

13 A. I -- I don't -- I don't know enough -- I
14 can't follow how pass-through is calculated in
15 every antitrust case. I can tell you that the
16 logit assumption is one of the most common
17 assumptions that's used in antitrust cases there
18 is.

19 Q. But --

20 A. All right?

21 Q. But you're not aware of this formula
22 being used to calculate pass-through in another
23 case.

24 A. Oh. Pass-through? Well, the formula
25 is used to calculate price effects from, say,

1 A. -- my answer?

2 -- when they -- when they're able to
3 avoid Google's, or in the case of YouTube, it was
4 Apple's take rate.

5 Q. Well, Table 9's not a comprehensive
6 analysis of all developers, right?

7 A. Well, it's not comprehensive because of
8 the challenged conduct here, right? It -- the
9 -- we don't -- we don't get to see steering in --
10 in the real world because of the restraint,
11 right? But the case in part, or in large part,
12 is about challenging that restraint.

13 So it is -- it is difficult to -- to
14 take advantage or exploit natural experiments
15 given Google's conduct here.

16 Q. Right. I'm -- I'm just asking. You
17 didn't do any comprehensive analysis of any
18 relationship between service fees in the actual
19 world and developer's prices in the actual world.

20 A. The -- the closest I did to that was I
21 did a comprehensive analysis of taxes at the
22 state level on prices -- app prices. And I found
23 such a good relationship between those two that
24 it -- it is strongly indicative that to the
25 extent that the take rate works the same as an ad

1 valorem sales tax, you would also believe that
2 changes in take rates, all right, --

3 Q. Right.

4 A. -- would -- if -- if they were allowed
5 or induced through competition, would also be
6 -- would be predicted to cause changes in prices.

7 Q. My question was you didn't do any
8 comprehensive analysis of the relationship
9 between service fees in the actual world and
10 developers' prices in the actual world using
11 actual data regarding those things.

12 A. I couldn't. I just explained why that
13 Google, for the most part -- if you look in terms
14 of share transactions -- were well in the high
15 90s of -- of take rates between 29 percent and 30
16 percent.

17 So for the vast majority of the class
18 period, Google has been charging the same take
19 rate. And now you're asking me could I do a
20 comprehensive analysis across all transactions?
21 I have bad news for you. Across most or almost
22 all transactions, there has been no variation in
23 the take rate to exploit.

24 Q. Okay. So I'm -- I understand you feel
25 like you couldn't have done it. But I'm asking

1 you did you do any analysis of the relationship
2 between service fees in the actual world and
3 developers' prices in the actual world using
4 actual data.

5 A. I did for Table 9 in my report for that
6 handful of examples, but I -- the next best thing
7 that I could do -- because you need variation.

8 Q. Sir, I'm going to -- I'm going to
9 interrupt you because you're not answering my
10 question.

11 My question is, Did you do any
12 comprehensive analysis using actual data of the
13 relationship between service fees and the prices
14 that developers actually charged?

15 MS. GIULIANELLI: And I'm going to ask
16 you that you allow the witness to answer the
17 question because I believe he was answering it.

18 THE WITNESS: I think I have done
19 comprehensive analysis. As you know, your --
20 your experts put forward experiments where they
21 think they're exploiting changes in service fees
22 looking -- and going and looking for changes
23 in prices, so I -- I have. I've looked at
24 everything possible that would allow to you do it
25 in light of the restraints that -- that Google

1 has imposed throughout the class period.

2 This is why their examples are so
3 tortured. They're looking at these slight little
4 variations that either barely applied to an app
5 or where prices couldn't change because of Google
6 restriction. So I -- I did everything that I
7 could possible. I'm telling you that the most
8 comprehensive thing that -- that relates would be
9 the relationship between ad valorem sales taxes
10 at -- at the state level and prices, which do
11 -- are -- there's a tight relationship between
12 those two, right?

13 Q. Right. But the analysis of ad valorem
14 sales taxes doesn't use actual data regarding
15 developers' service fees and prices in the actual
16 world, correct?

17 A. That is correct.

18 Q. Okay. And so you haven't done any
19 analysis -- using actual data on prices and
20 service fees for the entire set of developers
21 that's at issue in this case, you haven't done
22 any comprehensive analysis regarding the
23 relationship between those things, correct?

24 A. I told you I could not do it given the
25 nature of the lack of variation --

1 Q. And because --

2 A. -- in Google's --

3 Q. -- you couldn't --

4 A. Almost every transaction.

5 MS. GIULIANELLI: Hey, hey. Let --

6 let --

7 THE WITNESS: Almost every transaction
8 is occurring at 30 percent. You -- you need
9 variation in the treatment variable in order to
10 tease out the relationship. And if Google
11 doesn't do it because of its restraints
12 preventing competition, I can't -- I can't run a
13 test of what you're asking for.

14 BY MR. RAPHAEL:

15 Q. Right. And because you feel like you
16 couldn't do it, you didn't do it?

17 A. Correct.

18 Q. Okay. Now, the Miller -- let's go back
19 to the exhibit, I think it was 336, which was the
20 Miller article?

21 A. Yes.

22 Q. Now, if you'll go to the top of Page
23 452, we were talking earlier about Expression 2
24 which refers to the per-unit tax. Do you recall
25 that?

1 in the Staples and Office Depot case, that paper
2 clips and a ruler aren't necessarily substitutes;
3 but if the people generally tend to buy those
4 things from the same place, they can belong in
5 the same product market.

6 Q. So -- but -- but it's not your opinion
7 that all apps in each Google Play app category
8 are substitutes.

9 A. I just gave an example of Excel and Word
10 as being more -- more of complements, right? But
11 -- but when you think about the -- the cat -- the
12 productivity suite that Google is offering, that
13 -- that's clearly a substitute to what -- what
14 Microsoft is offering in its productivity suite.

15 Q. Right. So some of the apps in each
16 Google Play category could be complements,
17 correct?

18 A. They could be.

19 Q. And some could be substitutes.

20 A. They could be, yes.

21 Q. Right. And you haven't put forth a
22 model in your report to determine which apps in
23 each category are complements and which are
24 substitutes?

25 A. No. And it's not necessary to get the

1 implied pass-through rate.

2 Q. Right.

3 Could you go to Paragraph 78 of your
4 reply report -- well, actually, let me ask you:
5 Are you opining that all apps in each category
6 are part of a cluster market?

7 A. No. You -- you saw in my report. I'm
8 saying that they don't need to necessarily be a
9 market, a relevant market, for antitrust
10 purposes, and I give you a citation for that.

11 I think that if you -- if you really
12 wanted to -- if you forced it into that box,
13 which is unnecessary and unnatural, that you
14 could -- you could get there by -- by
15 understanding the categories functioning
16 more like a cluster market.

17 Q. Right. But you're not actually offering
18 the opinion that all of the apps in each category
19 are part of a cluster market.

20 A. No. I -- I'm offering the opinion that
21 -- that everything within the category -- that
22 the category definitions from Google define the
23 -- the contours or the arena of competition among
24 apps in that category.

25 Q. Okay. And, again, let's go to Paragraph

1 apply to a model of logit demand if the -- if the
2 model in Paragraph 104 is a generic model?

3 A. Well, because the logit pass-through
4 rule states pass-through as a function of
5 industry concentration and not of cost, and so
6 when you asked me why doesn't -- you're asking me
7 basically why isn't the pass-through rate under
8 logit changing with the change in costs. It
9 doesn't. It's just a property of the logit
10 demand. It doesn't make the math on 104 wrong.
11 It doesn't make the logit wrong. It just -- it's
12 no longer a function of cost.

13 Q. So the property of the logit demand
14 model that you used for your pass-through is that
15 the price is a function of the concentration and
16 not of the cost?

17 A. The pass-through is a function of the
18 concentration, not of the cost, correct.

19 Q. All right. What is focal point pricing?

20 A. Focal point pricing is the notion that a
21 consumer might focus on the -- on the first digit
22 before the decimal, as opposed to the last two.
23 So it explains why a lot of firms end -- end
24 their prices in 99 cents, or other -- or other
25 combinations. Just a greater focus on the first

1 -- on the stuff before the decimal place than --
2 than after the decimal place.

3 Q. Okay. And do you -- focal point pricing
4 is a well-established concept in economics?

5 A. Sure.

6 Q. And in the real world, many developers
7 price transactions only at certain focal points?

8 MS. GIULIANELLI: Objection.

9 THE WITNESS: We -- we've -- I've given
10 you all the stats that I think you could ever
11 want to see and more, but, you know, we know that
12 a lot do but a lot don't. You know, 20 percent
13 of the top 200 don't end in 99 cents, right,
14 which is a big number.

15 BY MR. RAPHAEL:

16 Q. So fair to say, though, that in the real
17 world some developers price in way that seems
18 like they're focal point pricing and some
19 developers don't?

20 A. Given -- given the constraints that
21 Google imposed on some developers, yes, they
22 -- you know, they did price at 99 cents.

23 Q. Well, what analysis have you done, sir,
24 in your reports to determine what effect Google
25 -- any constraints that Google imposed on

1 developers, in terms of how they price, had on
2 whether developers used focal point pricing?

3 A. So the problem is that Google only
4 recently released its developers from the
5 shackles of this 99 cent constraint, and it did
6 so so recently that it actually postdates the end
7 of the database that we're looking at.

8 So there's no analysis that I can
9 perform to see how many of those who were at 99
10 would come down. But I will tell you this, and
11 it's important, that Google did it at the demands
12 of the developers; they were responding to the
13 demand the developers wanted to go below 99 on
14 certain transactions.

15 The second thing I want to point out,
16 just kind of as a matter of basic economics, is
17 that if 99 was so magical that forces of nature
18 would take developers there on their own, why
19 would Google need to impose the floor, right? So
20 the very fact that Google imposed a floor on
21 developers tells me as an economist that Google
22 didn't trust that market forces would bring us to
23 99 cents, that Google had to artificially lift
24 everyone to 99. And Google was conflicted in
25 this role. Google understood that if a price war

1 broke out among developers such that we had guys
2 who were otherwise going to be at 99, some would
3 go to 49, some would go to 79, that's less
4 revenue -- that's less revenue for Google. So
5 Google had incentives to want to keep prices not
6 falling below a price floor.

7 Q. So other than the -- the 99 cent price
8 floor that you're referring to, are you referring
9 to any or have you offered an opinion that any
10 other constraints by Google would affect a
11 developer's ability to depart from focal point
12 pricing?

13 A. Absolutely.

14 Q. Okay.

15 A. The anti-steering rule, --

16 Q. Okay.

17 A. -- right? So I go through kind of a
18 long example, but I thought it was important, of
19 -- of the developer who was at 1.99, and then
20 given the opportunity to steer finds that 1.79,
21 you know, under 50 percent steering the sharing
22 rule, would be profit maximizing, right? So
23 Google did not present opportunities to steer.
24 And so then for your experts to say, Hey, there
25 isn't any steering here, well, I mean, they were

1 constrained by Google. Had they been given the
2 opportunity to deviate from the 99 and had it
3 been profit-maximizing to do so in order to --
4 you know, to save the delta between what Google's
5 take rate was and the rival's take rate, it would
6 have happened in spades, right, but it didn't,
7 and it didn't because of the constraints.

8 Q. Sir, is it your opinion that no
9 developer in the actual world was committed to
10 focal point pricing?

11 MS. GIULIANELLI: Objection.

12 THE WITNESS: I don't think that people
13 commit to focal point pricing. I think that
14 focal point pricing is -- is a function of what
15 your competitors are doing. It's a function of
16 the rules of the road that you're operating
17 under. It's a function of whether or not you
18 have steering opportunities.

19 So it's -- it's -- it's very
20 complicated. But I will say that what Dr. Burtis
21 said on this point, which is that because we see
22 a lot of 99, we're necessarily going to see a lot
23 of 99 in the but-for world, I say not true. It's
24 not true, because it itself is constrained by the
25 conduct -- by the challenged conduct.

1 BY MR. RAPHAEL:

2 Q. I guess what I'm asking is, is it your
3 opinion that focal point pricing doesn't explain
4 any developers' pricing in the actual world?

5 A. No, I think that's too harsh. I think
6 that focal point pricing is an important
7 consideration here.

8 Q. Okay. Now, and -- and the price floor
9 you talked about of setting prices at 99 cents,
10 that wouldn't affect developers who set their
11 prices quite a bit above 99 cents?

12 A. That's fair. I think that, when we
13 looked at the data, it's about -- it's about 20
14 percent of developers were at that 99 cent, so I
15 agree with you that -- that those would be the
16 ones who were constrained from -- from moving
17 downward.

18 Q. Okay. So the other 80 percent of
19 developers wouldn't be affected by what you're
20 calling the price floor that Google had in place?

21 A. Correct.

22 Q. Okay.

23 A. With one caveat in the sense that there
24 could be spillover effects from a floor being set
25 at 99 on what the next step up would be, but I

1 just wanted to put that out there that that's one
2 consideration. But in general, if you're looking
3 for -- if you want to go looking for where the
4 constraint hit hardest, you would look at the
5 guys who were stuck at 99.

6 Q. Okay. Does your formula for calculating
7 pass-through rates account for focal point
8 pricing in any way?

9 A. Well, it's solving for a percentage of
10 the cost savings that would be passed through to
11 end users, so I just think it's orthogonal. It's
12 just not -- it's not that it accounts or doesn't
13 account, it's just it's telling us something
14 else. It's telling us how a developer would
15 pass-through a save -- a reduction in marginal
16 costs to its end user.

17 Q. Okay. But you -- you say it's
18 orthogonal. I just -- just want to make sure
19 we're clear. Does your formula for calculating
20 pass-through rates account for focal point
21 pricing?

22 A. I don't think the -- the -- the logit
23 model is -- is thinking about these rigidities
24 that we see in the actual world caused in part by
25 the challenged conduct. But when you move to a

1 but-for world without these restraints, without
2 the price floor, without the anti-steering rules,
3 we're going to see a wider spread of prices for
4 sure. And, again, the last thing I want to say
5 is that what the formula is giving us in the
6 aggregate for a category is the percentage of
7 share. It's not telling us -- we're not asking
8 the model -- if you go to my final tables, which
9 breaks it out by -- by app category, we're trying
10 to use it to estimate damages in terms of
11 overcharges to the consumers. We -- we're not
12 using the model to make a precise prediction of
13 what Tinder would charge its customers in the
14 but-for world in October of 2019. That's not
15 what -- we're not asking that of the model, all
16 right?

17 Q. So your model is not actually -- your
18 pass-through model is not trying to predict what
19 any developer would have charged its customers in
20 the but-for world during the class period?

21 MS. GIULIANELLI: Objection.

22 THE WITNESS: I don't think that we are
23 aiming for the price of a given app in a given
24 month on a given plan. That's not what we're
25 trying to estimate. What we're trying to figure

1 out, for the purposes of impact, is to say that
2 if all app developers within a category achieved
3 a certain cost reduction by virtue of enhanced
4 competition and, thereby, lower take rate, how
5 much of that would be shared with consumers in
6 the aggregate across the category. And, you
7 know, what I'm hearing is, oh, my God, have you
8 ruled out 99-cent things or things that end in 9?
9 No, we haven't -- we haven't ruled that out. But
10 we're talking about the share of the costs that
11 are being saved in the aggregate across a
12 category. We can allow for 79-cent pricing, we
13 can allow for 99-cent pricing, 29-cent pricing in
14 the but-for world. We're not putting any
15 restrictions on -- on what the price of a
16 particular app in a particular plan at a
17 particular point in time are.

18 BY MR. RAPHAEL:

19 Q. Right. So I just want to make sure I
20 get an answer to my question. So your model for
21 a pass-through isn't trying to take account in
22 any specific way for the phenomenon of focal
23 point pricing?

24 A. I -- I don't -- I don't think that the
25 mod -- that particular logit estimate of the 89

1 percent is accounting or needs to take account.
2 I think I need to account for it in my overall
3 opinions about what the but-for world would look
4 like. But the logit model is just telling us
5 what the implied pass-through rate is given a
6 reduction in costs, given the concentration
7 -- the typical concentration we see within
8 categories in -- you know, in the app industry.

9 Q. Okay. Your regressions regarding the
10 logit demand, did they have any fixed effect or
11 other mechanism to control for focal point
12 pricing?

13 A. Well, they did use fixed effects. I
14 don't know if you meant to say that, but they
15 don't have a separate control variable for focal
16 point. But it is true, now that you brought this
17 up, we do have app fixed effects, right? So to
18 the extent that an app stayed constant at a given
19 price over time or always ended at 99 -- let me
20 just say for the record what fixed effects is.
21 Quite literally, it's controlling for any of
22 these attributes of the app that are constant
23 over time. And so if that tendency to want to
24 end in 99 or 79 or 69 is constant, then, yes, my
25 regressions control for it.

1 Q. Okay. But only to that extent?

2 A. Yeah. But it would be weird if -- if
3 there were an app who had a taste for focal point
4 price and then lost the taste then had it back.
5 It seems like those -- that tendency would be an
6 innate tendency that would be fixed over time.

7 Q. Okay. Have you tested whether
8 Dr. Burtis used a representative sample to
9 analyze pass-through rates using real world data?

10 A. Well --

11 MS. GIULIANELLI: Objection.

12 THE WITNESS: -- I know that -- that
13 -- that the revenues that are accounted for in
14 her treatment group are infinitesimally small.
15 Something on the order of 1 percent or 2 percent
16 of an app developer's revenues. And I can say
17 this: That if you're in the subscription
18 category and you can only find, you know, this
19 teeny fraction of -- of developers and there's
20 two kind of representatives as problems: One is
21 that it's too small of a share of the affected
22 developers' revenues to matter; but, then, two,
23 it also turns out to be too small of a share of
24 -- of revenues in the industry to matter.
25 So my -- my bottom-line position is this: That

1 Google.

2 BY MR. RAPHAEL:

3 Q. So the answer to my question is yes, all
4 developers would participate in the play points
5 program in the but-for world?

6 MS. GIULIANELLI: Objection.

7 THE WITNESS: I -- I like the way that I
8 said it better, which is that if a developer
9 thought that a substantial percentage of its
10 customers were going to be redeeming points via
11 this new and improved program, and if Google made
12 some kind of requirement that said you have to
13 sign a piece of paper so that you can accept the
14 payments under this program, the developers would
15 do it.

16 BY MR. RAPHAEL:

17 Q. Do you know if Google has that
18 requirement in the actual world?

19 A. I don't know if the Google has the
20 requirement in the actual world.

21 Q. Would that change your opinion as to
22 what would happen in the but-for world?

23 A. No. Because the program, for all intent
24 and purposes, is effectively zero right now.

25 Google doesn't need to be generous with its

1 points program because Google is immunized from
2 competition. Now, I think it would be
3 considering to look at career where Google was
4 forced because of one store to increase its
5 subsidy to around █ percent and all of a sudden
6 that's starting to approach something real. You
7 know █ percent is not real. █ percent
8 actually might make a difference on purchase, and
9 I'll just leave it at that.

10 Q. What's your standard for the percentage
11 of cash back accounted for by play points that
12 would make a difference to competition?

13 A. Not about difference to competition.
14 It's what would be sufficiently generous such
15 that consumers would partake in the program.

16 Q. And what amount of a cash back would be
17 sufficiently generous that consumers would
18 partake in the play points program?

19 A. Well, when you think about, like, AMEX
20 customers partaking in their points that American
21 Express gives back, I think AMEX is more generous
22 than 0.2 percent. In fact, Williams has the --
23 the percentage that AMEX shares with its -- with
24 its customers. It's over 1 percent.

25 So, you know, I don't know exactly the

1 A. I think the model is. I think that at 8
2 percent, the economic intuition -- well, this is
3 the intuition that I'm drawing from the model --
4 is that when the benefit gets so large, that is
5 going to spur participation and usage in the
6 system.

7 Q. Great.

8 Your -- your testimony here today, sir,
9 is that you have a model in your reports that can
10 tell the Court and the jury in this case which of
11 the members of the putative class would have
12 signed up for play points and who would have used
13 them?

14 MS. GIULIANELLI: Objection to the form.

15 THE WITNESS: I didn't say that. I said
16 that if the but-for subsidy were to rise to 8
17 percent, then it would be embraced -- the play
18 points system would be embraced across the class
19 just as the way that the points system in the
20 AMEX marketplace is embraced across American
21 Express users.

22 BY MR. RAPHAEL:

23 Q. Okay. So I want to -- I want to be
24 clear. You have -- your testimony is that in the
25 but-for world, every member of the putative class

C E R T I F I C A T E

I do hereby certify that I am a Notary Public in good standing, that the aforesaid testimony was taken before me, pursuant to notice, at the time and place indicated; that said deponent was by me duly sworn to tell the truth, the whole truth, and nothing but the truth; that the testimony of said deponent was correctly recorded in machine shorthand by me and thereafter transcribed under my supervision with computer-aided transcription; that the deposition is a true and correct record of the testimony given by the witness; and that I am neither of counsel nor kin to any party in said action, nor interested in the outcome thereof.

WITNESS my hand and official seal this 13th day of May, 2022.



Notary Public

REDACTED VERSION

Exhibit A53 to C. Cramer Declaration

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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

**IN RE GOOGLE PLAY CONSUMER
ANTITRUST LITIGATION**

THIS DOCUMENT RELATES TO:

*In Re Google Play Consumer Antitrust
Litigation*, Case No. 3:20-CV-05761-JD

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Games, Inc. in Epic Games, Inc. v. Google LLC;
State of Utah et al. v. Google LLC et al.*

Case No. 3:21-md-02981-JD

FILED UNDER SEAL

**DEFENDANTS' NOTICE OF MOTION AND
MOTION TO EXCLUDE TESTIMONY OF DR.
HAL J. SINGER ON CLASS CERTIFICATION;
MEMORANDUM OF POINTS AND
AUTHORITIES IN SUPPORT THEREOF**

Date: August 4, 2022
Time: 10:00 a.m.
Judge: Hon. James Donato
Courtroom: 11, 19th Floor, 450 Golden Gate Ave,
San Francisco, California 94102

Case No. 3:20-CV-05761-JD

NOTICE OF MOTION

TO ALL PARTIES AND THEIR COUNSEL OF RECORD:

PLEASE TAKE NOTICE THAT on August 4, 2022 at 10:00 a.m., or as soon thereafter as the matter may be heard, in Courtroom 11, 19th Floor, 450 Golden Gate Avenue, San Francisco, California, 94102, before the Honorable James Donato, the undersigned Defendants (“Defendants”), will and hereby do move the Court for an order excluding the testimony of Consumer Plaintiffs’ proffered expert Dr. Hal J. Singer, on the ground that it is not admissible under Federal Rule of Evidence 702. This motion is based upon this Notice of Motion, the attached Memorandum of Points and Authorities, the concurrently-filed declaration of Justin P. Raphael, and the exhibits to that declaration, the concurrently-filed Proposed Order, the pleadings and records on file in this action, and upon any additional evidence and argument that may be presented before or at the hearing of this motion.

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ISSUE TO BE DECIDED

Whether the Court should exclude the expert opinions of the Consumer Plaintiffs' expert Dr. Hal J. Singer as unreliable under Rule 702 of the Federal Rules of Evidence and *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579 (1993).

INTRODUCTION

Consumer Plaintiffs allege that developers passed on service fees for the Google Play Store by charging consumers higher prices for downloading apps, subscribing to apps, and buying digital content used in apps ("in-app purchases" or "IAPs"). Plaintiffs' expert, Dr. Hal Singer, has proffered what he calls a "deceptively straightforward" model to prove this pass-through on a class-wide basis. Dr. Singer's pass-through model is unreliable.

The putative class of millions of consumers in the United States downloaded many thousands of different kinds of apps from the Play Store. Ninety percent of the apps in the Play Store are completely free; consumers pay nothing to download them, subscribe to them, or buy IAPs in them. Consumer Plaintiffs' case involves the small fraction of apps for which developers charge consumers for a download, a subscription, or an IAP. Developers set the prices for those transactions, which are subject to service fees. Consumer Plaintiffs' theory of antitrust injury is that (1) Google unlawfully foreclosed competition for the Play Store, (2) absent this conduct, Google would have charged lower service fees, and (3) rather than investing these reduced fees in improving or marketing their apps, developers would have passed the reduced fees on by charging lower prices for apps, subscriptions, and IAPs.

Theories of antitrust impact that depend on pass-through are "more complex" because they "must account for the actions of innocent intermediaries who allegedly passed on the overcharge." *In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D. 478, 499 (N.D. Cal. 2008). Here, the "intermediaries" are thousands of developers of different apps with different marginal costs, competitors and business strategies. Dr. Singer has not run any regression or other econometric analysis to identify which of the developers would have reduced their prices if they were subject to lower service fees and by how much. In fact, Dr. Singer has not measured pass-through using any data regarding what developers actually did when Google reduced its service fees in the real

1 world. Rather, according to Dr. Singer, each app's pass-through rate can be calculated using a
 2 simple ratio: the number of transactions involving that app divided by the total number of
 3 transactions involving apps in the same category in the Play Store. All Dr. Singer does to
 4 calculate the app's pass-through rate is to subtract that ratio from 100. Thus, if 1% of transactions
 5 in the Weather category involve a particular app, Dr. Singer calculates that the developer of that
 6 app would have passed on 99% of any service fee above the competitive level. That is it.

7 The Court should exclude Dr. Singer's opinions based on this bare bones formula. *First*,
 8 the formula is not "a generally accepted method," *Milan v. Clif Bar & Co.*, No. 18-cv-02354-JD,
 9 2021 WL 4427427, at *6 (N.D. Cal. Sept. 27, 2021) (Donato, J.), because it departs from what Dr.
 10 Singer himself identifies as standard economics in his own reports. Google's service fees are
 11 calculated as a percentage of the prices that developers charge. According to the economic model
 12 that Dr. Singer describes as "generally accepted" and included in his report, whether an increase in
 13 such costs affect prices (if at all) depends on a firm's other marginal costs. Dr. Singer concededly
 14 did not use this accepted model because he could not possibly determine the marginal costs of
 15 each of the thousands of developers that transacted with the putative consumer class. Instead, Dr.
 16 Singer used a formula based on an app's category share, which he conceded "doesn't actually
 17 depend on what the marginal cost of the developer is." Ex.¹ 1, Singer Dep. at 91:3–8. A pricing
 18 model that does not depend on costs does not reflect standard economics. Dr. Singer also testified
 19 that, according to standard economics, if developers paid lower service fees, then they would have
 20 had incentives to compete by investing in improving their apps. However, Dr. Singer's pass-
 21 through model does not account for whether reduced service fees would have led developers to
 22 reinvest in their own products, not pass on the reduction to consumers.

23 *Second*, real-world data shows that Dr. Singer's pass-through rate formula is not reliable.
 24 Dr. Singer's formula predicts that lower service fees *always* lead to lower prices. However, real
 25 world data from the class period show that when Google reduces its service fees to some
 26 developers, those developers *almost never* reduce their prices. Dr. Singer's pass-through rate

27 _____
 28 ¹ All references to "Ex." are exhibits to the concurrently-filed declaration of Justin P. Raphael.

1 formula thus “substitutes mathematical assumptions for actual, readily-obtainable information.”
2 *Laumann v. NHL*, 117 F. Supp. 3d 299, 315–16 (S.D.N.Y. 2015) (excluding expert testimony).

3 *Third*, Dr. Singer’s pass-through rate formula does not account for “focal point pricing,”
4 the widely used strategy of setting prices ending in “9” or “99,” which could explain why
5 developers might not have reduced prices if they were subject to lower service fees. This exact
6 shortcoming has led other courts in this District to exclude expert testimony, and this Court should
7 do the same. *E.g.*, *In re Apple iPhone Antitrust Litig.*, No. 11-cv-6714-YGR, 2022 WL 1284104,
8 at *8 (N.D. Cal. Mar. 29, 2022); *In re Lithium Ion Batteries Antitrust Litig.*, No. 13-MD-2420
9 YGR, 2018 WL 1156797, at *3 (N.D. Cal. Mar. 5, 2018).

10 *Fourth*, Dr. Singer’s formula depends on a premise that he admits he cannot substantiate.
11 Even though his pass-through formula is derived from a model of demand in which all apps in
12 each Play Store category are substitutes, at deposition Dr. Singer disclaimed any opinion that all
13 apps in each Play Store category actually are substitutes. Ex. 1, Singer Dep. at 158:14–16. That
14 leaves Dr. Singer unable to opine that a necessary condition for his formula is met.

15 *Finally*, Dr. Singer’s pass-through formula reflects undisclosed tests. Dr. Singer chose his
16 formula from several others reflecting differently structured demand curves. Dr. Singer tested
17 those formulas, but Consumer Plaintiffs did not disclose the results, so Google cannot test Dr.
18 Singer’s opinion that his formula best fits the structure of demand for apps. That is prejudicial
19 because Dr. Singer himself testified that pass-through depends on the structure of demand.

20 Dr. Singer offers an alternative opinion that all consumers suffered antitrust impact
21 because, in the but-for world, Google would have provided a more generous Play Points loyalty
22 program. This opinion, too, is unreliable because it reflects assumption rather than analysis. Most
23 consumers did not sign up for the Play Points Program and many of those who did earn Play
24 Points never used them. Dr. Singer, however, admits that he has no model to determine which
25 consumers would have signed up for and used Play Points in the but-for world. Rather, he calls it
26 a “fair assumption” that all consumers would have done so. That is not a reliable method of
27 common proof of antitrust impact.

28 The Court should exclude Dr. Singer’s testimony from class certification proceedings.

BACKGROUND

Consumer Plaintiffs’ theory of antitrust impact is that they would have paid lower prices for apps, subscriptions, and IAPs in the but-for world. This theory proceeds in two steps: (1) if Google had not engaged in allegedly anticompetitive conduct, then Google would have faced more competition and responded by lowering service fees, and (2) developers subject to lower service fees would have charged less for apps, subscriptions, and IAPs. *See* Consumer Second Am. Compl. ¶ 208, ECF No. 241. Dr. Singer purports to have a model for each step.

Service Fee Rate Model. Dr. Singer’s method for calculating the service fee rates that Google would have charged in a more competitive market consists of a series of mathematical equations. One of the inputs into those equations is the average pass-through rate that Dr. Singer has calculated. *See* Ex. 2, Singer Rep. ¶ 125; Ex. 1, Singer Dep at 337:4–19. This means that if a developer would not have passed through a reduced service fee, then Google would not have reduced its service fee. The but-for service fee rate would thus be the same as the real-world rate, meaning that Google would not have overcharged that developer. *See* Ex. 3, Burtis Rep. ¶ 335.

Pass-Through Rate Model. Dr. Singer’s method for calculating pass-through rates consists of mere arithmetic. Google organizes apps into categories for purposes of cataloging them in the Play Store. Those categories do not reflect any economic analysis of substitution. Developers can choose the categories when they submit their apps. Ex. 1, Singer Dep. at 90:3–6. Dr. Singer nevertheless attributes decisive economic significance to developers’ category choices. He opines that a developer will pass through a change in service fees at a rate equal to 100 minus the percentage of transactions in the app’s category accounted for by that app (Ex. 2, Singer Rep. ¶ 239), or: **100% – [Number of App’s Transactions / Number of Transactions of all Apps in Same Category]**. Ex. 1, Singer Dep. at 131:5–132:2. Thus, for example, if an app in the Health category has 2% of transactions, then it will change prices by 98% of any change in service fees.

This formula guarantees pass-through for virtually all apps. As Dr. Singer admitted, his formula always “predicts” pass-through so long as an app does not have 100% of transactions in a given category, which no app does. Ex. 1, Singer Dep. at 181:23–183:7. Dr. Singer’s formula also predicts what he calls “very strange results”: an app’s pass-through rate, and thus its prices,

1 will change week to week or month to month as the app’s share of transactions in its category
 2 moves up or down based on consumers’ buying habits. *Id.* at 134:3–9.

3 **No Regression Related to Pass-Through.** Dr. Singer has not run any regression to
 4 calculate pass-through rates. Ex. 1, Singer Dep. at 164:18–165:12. The regression he ran “isn’t
 5 measuring how a service fee change affects the price of an app or in-app purchase.” *Id.* His
 6 regression measures how changes in developers’ prices for apps, subscriptions, and IAPs affect
 7 demand for those transactions. Ex. 2, Singer Rep. ¶ 236; Ex. 1, Singer Dep. at 164:10–17.

8 **Play Points.** Dr. Singer offers an alternative opinion related to Google Play Points, a
 9 “loyalty points program” that Dr. Singer calls a “subsidy” for transactions in the Play Store. Ex. 2,
 10 Singer Rep. ¶ 245. Less than [REDACTED] of U.S. consumers participated in the Play Points Program
 11 and only [REDACTED] of U.S. consumers redeemed Play Points. Ex. 3, Burtis Rep. ¶ 358; Ex. 4, Singer
 12 Reply Rep. ¶ 98. According to Dr. Singer, Google offered a total amount of Play Points
 13 equivalent to an average of \$0.02 per transaction in the real world, but would have offered Play
 14 Points equivalent to an average of \$0.77 per transaction (or 8.7%) in the but-for world. Ex. 2,
 15 Singer Rep. at 122, Table 10. However, Dr. Singer has not developed a model to determine which
 16 consumers would have signed up for or redeemed Play Points in the but-for world. Ex. 1, Singer
 17 Dep. at 295:5–20, 296:6–19, 297:8–21.

18 LEGAL STANDARD

19 Plaintiffs have the burden to prove that Dr. Singer’s testimony is admissible. *Bourjaily v.*
 20 *United States*, 483 U.S. 171, 175–76 (1987); *DSU Med. Corp. v. JMS Co.*, 296 F. Supp. 2d 1140,
 21 1146–47 (N.D. Cal. 2003). Under Rule of Evidence 702, at class certification this court acts as a
 22 “gatekeeper” to ensure that expert testimony is reliable. *Daubert v. Merrell Dow Pharms., Inc.*,
 23 509 U.S. 579, 589 (1993); *Ellis v. Costco Wholesale Corp.*, 657 F.3d 970, 982 (9th Cir. 2011).

24 *First*, the Court must ensure that Dr. Singer’s testimony is “the product of reliable
 25 principles and methods.” Fed. R. Evid. 702(c). This Court has explained that this requires
 26 assessing whether Dr. Singer has used “a generally accepted method for determining antitrust
 27 impact” *In re Capacitors Antitrust Litig.* (No. III), No. 17-md-02801-JD, 2018 WL 5980139,
 28 at *6 (N.D. Cal. Nov. 14, 2018) (Donato, J.).

1 *Second*, the Court must scrutinize “what basis [Dr. Singer] has” for his opinions. *Daubert*
 2 *v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1316 (9th Cir. 1995). The Court must ensure that Dr.
 3 Singer’s methodology is “based on sufficient facts or data” and “that he has “reliably applied the
 4 principles and methods to the facts of the case.” Fed. R. Evid. 702(b), (d); *United States v.*
 5 *Hermanek*, 289 F.3d 1076, 1093 (9th Cir. 2002) (citation omitted). This standard “connotes more
 6 than subjective belief or unsupported speculation.” *Daubert*, 509 U.S. at 590–91. “[N]othing in
 7 either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence
 8 that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that
 9 there is simply too great an analytical gap between the data and the opinion proffered.” *Gen. Elec.*
 10 *Co. v. Joiner*, 522 U.S. 136, 146 (1997).

11 **ARGUMENT**

12 **I. DR. SINGER’S PASS-THROUGH FORMULA IS NOT RELIABLE.**

13 **A. Dr. Singer’s Pass-Through Formula Is Not Generally Accepted and** 14 **Contradicts His Own View of Accepted Economics.**

15 Dr. Singer’s pass-through rate formula does not reflect a generally accepted economic
 16 method for calculating whether, and how much, firms pass on costs structured like Google’s
 17 service fees. Dr. Singer (1) does not use the generally accepted economic pricing model set forth
 18 in his own report and (2) does not account for the standard economic prediction (also in his report)
 19 that developers would have incentives to use savings on service fees to invest in their apps.

20 A “pass-through rate[.]” is “the ratio of the dollar change in a developer’s profit-
 21 maximizing price resulting from a one-dollar change in marginal cost.” Ex. 2, Singer Rep. ¶ 239;
 22 Ex. 1, Singer Dep. at 103:18–104:12. In Paragraph 225 of his report, Dr. Singer provides the
 23 model “that’s generally accepted in economics” for how an increase in service fees would affect a
 24 developer’s price. Ex. 1, Singer Dep. at 105:8–106:3, 107:23–108:2; Ex. 2, Singer Rep. ¶ 225.
 25 This model reflects an important difference between what economists call “per-unit” costs and *ad*
 26 *valorem* costs. “Per unit” costs are a dollar amount per transaction. Google’s service fees are *ad*
 27 *valorem* costs: a percentage of the price charged. Ex. 1, Singer Dep. at 104:13–20.

28 According to the generally accepted economic model that Dr. Singer sets forth in his

1 report, an economist calculating how changes in a service fee will affect how each developer sets
 2 prices must have information on each developer's marginal costs, if any. This is because,
 3 according to the model, if changes in *ad valorem* costs would affect a developer's prices, any
 4 effect would be proportional to the developer's other, per-unit marginal costs. See Ex. 2, Singer
 5 Rep. ¶ 225 & n.495; Ex. 1, Singer Dep. at 105:8–106:3, 107:23–109:14. Specifically, the effect of
 6 a service fee on the costs that affect a developer's price is modeled using the expression $C / (1 - t)$,
 7 where C are the developer's marginal costs and t is the service fee rate. Ex. 2, Singer Rep. ¶ 225.
 8 Thus, each developer's marginal costs are an input into determining how the service fee rate will
 9 affect how a developer sets prices. Ex. 1, Singer Dep. at 108:17–25.

10 The generally accepted principle that service fees' effects on prices depend on developers'
 11 marginal costs means that those effects will vary from developer to developer because, as Dr.
 12 Singer concedes, "the marginal cost to a developer of supplying an additional in-app purchase
 13 vary [sic] from developer to developer." Ex. 1, Singer Dep. at 95:15–18. Indeed, Dr. Singer
 14 concedes that if a developer's cost of producing an additional in-app purchase is zero, then "prices
 15 would not adjust" if a developer paid a lower service fee, *id.* at 109:15–110:3, *i.e.*, there would be
 16 no pass-through and no injury to consumers from a transaction with that developer. This is not
 17 hypothetical: Dr. Singer relies on an article in his report stating that the "replication cost of digital
 18 goods is zero." *Id.* at 95:22–98:19; Ex. 5, Avi Goldfarb & Catherine Tucker, *Digital Economics*,
 19 57 J. Econ. Lit. 3, 12 (2019) (DX 335); see also Ex. 3, Burtis Rep. ¶¶ 142–143.

20 Dr. Singer did not calculate pass-through rates using the generally accepted economic
 21 model—set forth in his own report—that *ad valorem* costs affect prices proportional to other
 22 marginal costs. Ex. 1, Singer Dep. at 382:6–15. Dr. Singer candidly admitted that he did not use
 23 the standard economic model "because it's—it's difficult to—to estimate the change in marginal
 24 cost from the developer's perspective." *Id.* at 129:10–17. Indeed, Dr. Singer testified that a each
 25 developer's marginal costs are "a variable that might be impossible to observe." *Id.* at 196:12–24.
 26 Dr. Singer thus has not estimated *any* developer's marginal costs other than service fees. *Id.* at
 27 90:20–91:2, 91:22–92:7. As a result, Dr. Singer lacks what his own report identifies as a
 28 necessary input for calculating any effect of Google's service fees on developer's prices.

1 To evade that problem, Dr. Singer used a formula set forth in Paragraph 239 of his report
 2 that, as he admitted at deposition, does not do “anything [] to reflect the fact that the affect [*sic.*]
 3 on the price will be proportional to other marginal costs.” Ex. 1, Singer Dep. 124:18–127:13; *see*
 4 *also id.* at 186:6–18. Dr. Singer borrowed that formula from a 2013 article which expressly states
 5 that its formulas are designed to calculate how a “*per-unit*” cost, not an *ad valorem* cost, affects
 6 prices. *Id.* at 116:14–118:3, 123:3–11; *see* Ex. 2, Singer Rep. at 111 n.516 (citing Nathan Miller,
 7 Marc Remer & Gloria Sheu, *Using Cost Pass-Through to Calibrate Demand*, 118 Econ. Ltrs. 452
 8 (2013) (DX 336)). Dr. Singer admitted that this pass-through formula “doesn’t actually depend on
 9 what the marginal cost of the developer is.” Ex. 1, Singer Dep. at 91:3–8. In fact, Dr. Singer
 10 testified that “the beauty” of his pass-through formula is that “we don’t need to estimate the
 11 marginal costs in order to get the pass-through rate,” *id.* at 190:20–192:3, and that he “went with”
 12 it “because I didn’t need to estimate the marginal costs of the developer.” *Id.* at 195:20–196:24.

13 Thus, as Dr. Singer testified, in his formula, “pass-through is a function of the
 14 concentration” of an app’s category, “not of the cost” borne by the developer. *Id.* at 197:13–18. A
 15 pricing model that does not depend on costs contradicts fundamental economics. After all, Dr.
 16 Singer opines that “[o]ne of the most universal principles of economics is that prices depend on
 17 costs.” Ex. 2, Singer Rep. ¶ 223. Thus, Dr. Singer has never used his formula to calculate pass-
 18 through in any other case and could not identify any published paper that has done so. Ex. 1,
 19 Singer Dep. at 151:8–152:2. Even the Developer Plaintiffs’ expert, who is adverse to Google,
 20 testified that Dr. Singer’s formula reflects “complete fictions” and “defies common sense.” Ex. 6,
 21 Williams Dep. at 322:20–323:5.

22 Dr. Singer also does not account for the principle that “standard economics would give
 23 developers an incentive to respond to lower service fees by reducing prices and improving
 24 quality.” Ex. 1, Singer Dep. at 53:24–54:3. Dr. Singer’s report states: “Standard economics
 25 shows that competition drives firms to make competitive investments in product quality to keep
 26 pace with rivals.” Ex. 2, Singer Rep. ¶ 233. But Dr. Singer admitted that his pass-through model
 27 “doesn’t measure whether any developer would actually invest, or how much they would invest, in
 28 improving the quality of their app in the but-for world.” Ex. 1, Singer Dep. at 56:14–57:5. Dr.

1 Singer therefore has no basis to opine that any developer, let alone all developers, would have
2 passed on savings from reduced service fees instead of investing them in improving app quality.

3 Ultimately, the pass-through formula that Dr. Singer revealingly calls “deceptively
4 straightforward,” Ex. 4, Singer Reply Rep. ¶ 68, proves far too much. The Supreme Court has
5 recognized that pass-through is not straightforward at all. *See Illinois Brick Co. v. Illinois*, 431
6 U.S. 720, 742 (1977) (noting the “difficulties that have been encountered” with “statistical
7 techniques used to estimate” pass-through). Dr. Singer’s logic is that service fees are
8 “economically analogous to a tax on developers” and “[e]lementary economics shows how taxes
9 are passed on to buyers,” Ex. 2, Singer Rep. ¶ 244, but the Supreme Court has rejected
10 “simplifying assumptions” that “overcharges” are “equivalent to an excise tax.” *Illinois Brick*,
11 431 U.S. at 741 & n.25. “[I]n the real economic world rather than an economist’s hypothetical
12 model, the latter’s drastic simplifications generally must be abandoned.” *Id.* at 742 (internal
13 quotation marks omitted). Just so here. The Court should exclude Dr. Singer’s opinions based on
14 a pricing model that has nothing to do with costs and reduces complex pricing for thousands of
15 different developers to calculating each app’s proportion of transactions in a category.

16 **B. Dr. Singer’s Pass-Through Rate Formula Ignores Actual Data.**

17 Dr. Singer’s use of a formula that does not account for basic economics results in “simply
18 too great an analytical gap between the data and the opinion proffered.” *Joiner*, 522 U.S. at 146.
19 “[A] key question to be answered in determining whether a theory or technique is scientific
20 knowledge that will assist the trier of fact [is] whether it can be (and has been) tested,” and “the
21 court ordinarily should consider the known or potential rate of error.” *Daubert*, 509 U.S. at 593–
22 94. Dr. Singer, however, has not tested his formula using data reflecting how developers set
23 prices when Google actually reduced service fees during the class period. In that respect, Dr.
24 Singer departed from the practice he “typically” uses of “regressing retail price changes on
25 wholesale price changes.” Ex. 1, Singer Dep. at 134:25–135:6.

26 Google reduced service fees for many transactions in 2018, 2021 and 2022. Ex. 4, Singer
27 Reply Rep. ¶ 9. Dr. Singer’s formula predicts that *every* developer would pass on reduced service
28 fees by reducing prices. Ex. 1, Singer Dep. at 89:19–23. However, an analysis of data in the real

1 world shows that developers in the data set only reduced prices for about ■ of products subject
 2 to service fee reductions. *See* Ex. 3, Burtis Rep. at 103, Fig. 13. An analysis of other data by the
 3 Developer Plaintiffs’ expert shows that developers only reduced prices for about ■ of products
 4 subject to service fee reductions. *Id.* at 101 n.348; *see also* Ex. 6, Williams Dep. at 312:21-314:2.

5 Thus, the pass-through that Dr. Singer predicts for *all* apps in fact occurred for almost none
 6 of them. Indeed, several of the Developer Plaintiff class representatives state in sworn discovery
 7 responses that they “never adjusted the price of [their] apps or in-app products in response to
 8 changes in Google’s service fees.” Ex. 7, Pl. Rescue Pets’ Suppl. Resp. to Def.’s Interrog. No. 18;
 9 Ex. 8, Pl. LittleHoots’ Suppl. Resp. to Def.’s Interrog. No. 18; Ex. 9, Pl. Pure Sweat Basketball’s
 10 Suppl. Resp. to Def.’s Interrog. No. 18. (Dr. Singer did not rely on any developer’s testimony.
 11 Ex. 1, Singer Dep. at 237:18–22.) Moreover, numerous other developers also offer apps,
 12 subscriptions, and IAPs at the same price on Google Play as on platforms where they pay either
 13 lower service fees or no service fees at all, Ex. 1, Singer Dep. at 224:8–24, 229:22–230:11; Ex. 3,
 14 Burtis Rep. ¶ 169, undermining Dr. Singer’s logic that lower fees always mean lower prices.

15 Dr. Singer gets nowhere by suggesting that developers may not have reduced their prices
 16 because they cannot “steer” users to platforms other than Google Play using in-app
 17 communications. Ex. 4, Singer Reply Rep. ¶ 100. Dr. Singer testified that his pass-through
 18 formula does not depend on steering. Ex. 1, Singer Dep. at 242:15–22. Indeed, his formula relies
 19 entirely on shares of transactions in categories of apps in the Play Store. Dr. Singer also testified
 20 that he “would expect pass-through regardless of the anti-steering restrictions.” Ex. 1, Singer Dep.
 21 at 242:23–244:3. Moreover, Dr. Singer has not conducted any empirical analysis of any inability
 22 to steer on real-world pass-through rates, *id.* at 239:2–13, 240:2–241:1, 246:3–12, or even
 23 analyzed any developer’s returns on investment from steering in-app or otherwise. *Id.* at 74:23–
 24 76:9. Thus, Dr. Singer’s steering explanation for the “gap between the data and the opinion
 25 proffered,” *Joiner*, 522 U.S. at 146, reflects speculation that is “inherently unreliable.” *Ollier v.*
 26 *Sweetwater Union High Sch. Dist.*, 768 F.3d 843, 861 (9th Cir. 2014).

27 Evidence that virtually no developers that paid lower service fees reduced prices to
 28 consumers is proof that Dr. Singer’s pass-through formula is not reliable. “Expert testimony is

1 useful as a guide to interpreting market facts, but it is not a substitute for them.” *Brooke Grp. Ltd.*
 2 *v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 242 (1993).

3 **C. Dr. Singer’s Pass-Through Rate Formula Does Not Account for Focal Point**
 4 **Pricing.**

5 A third reason why Dr. Singer’s pass-through rate formula is not reliable is that it “does
 6 not adequately account for the effects of focal point pricing, and therefore fails to yield reliable
 7 conclusions.” *In re Lithium Ion Batteries Antitrust Litig.*, 2018 WL 1156797 at *3. Focal point
 8 pricing is a “well-established concept in economics” in which firms set prices ending in “99,”
 9 which consumers can perceive as significantly more attractive than prices just one cent higher.
 10 Ex. 1, Singer Dep. at 197:19–198:4; Ex. 3, Burtis Rep. ¶ 149. Developers have widely adopted
 11 this strategy: [REDACTED] of U.S. consumers’ retail app transactions involved prices ending in ‘99, Ex. 3,
 12 Burtis Rep. ¶ 149, and over [REDACTED] developers used prices ending in “99” during the class period.
 13 *Id.* at 111, Table 9. *Cf. Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *8 (“with respect to
 14 focal-point pricing, overwhelming evidence suggests that developers would choose to price their
 15 apps at focal points ending in 99 cents.”).

16 Dr. Singer admits that “focal point pricing is an important consideration here.” Ex. 1,
 17 Singer Dep. at 202:2–7. Indeed, focal point pricing is one reason why developers may not have
 18 reduced prices if they paid lower service fees. Developers that rely on focal point pricing would
 19 not reduce prices in response to lower service fees “if the reduction from one” focal price point “to
 20 the next would be so large that the developer would lose profits.” Ex. 3, Burtis Rep. ¶ 150.

21 Dr. Singer’s pass-through formula does not account for focal-point pricing at all. Ex. 1,
 22 Singer Dep. at 205:19–206:8. Given this oversight, it is not surprising that Dr. Singer’s model
 23 produces results that are flatly inconsistent with focal-point pricing. According to Dr. Singer’s
 24 model, developers that paid lower service fee rates would have reduced prices by less than a
 25 dollar, *i.e.*, above the next lowest focal point. Ex. 4, Singer Reply Rep. ¶ 28. And according to the
 26 model, more than 99% of developers would have abandoned focal point pricing if they were
 27 subject to lower service fees. *See* Ex. 3, Burtis Rep. ¶ 315, and Table 9.

28 Judge Gonzales Rogers recently excluded testimony that Apple’s allegedly

1 supracompetitive service fees for its App Store resulted in higher prices for all consumers of apps
 2 in the Store because the expert's "model does not provide a reliable method for determining but-
 3 for pricing in the presence of focal pricing." *Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at
 4 *8. Dr. Singer's pass-through rate model does not do so, either, and likewise is inadmissible.

5 **D. Dr. Singer's Pass-Through Rate Formula Relies on the Unsubstantiated**
 6 **Assumption that All Apps in a Google Play Category Are Substitutes.**

7 Dr. Singer's pass-through rate formula also is not reliable because he admits the premise it
 8 depends on is not true. *E.g., Boyar v. Korean Air Lines Co.*, 954 F. Supp. 4, 8–9 (D.D.C. 1996)
 9 ("[A] number of [] cases exclude expert testimony because the factual assumption upon which it
 10 was based was faulty and plainly contradicted by the evidence."). Dr. Singer's category-share
 11 formula reflects a demand structure ("logit") whose fundamental feature is that "all goods in the
 12 market where demand is being measured are substitutes." Ex. 1, Singer Dep. 158:6–13; Ex. 2,
 13 Singer Rep. ¶ 224; Ex. 4, Singer Reply Rep. ¶¶ 75-77; *see also* Ex. 3, Burtis Rep. ¶ 308; *id.* at 107
 14 n.363. But Dr. Singer disclaimed any opinion that "all apps in each Google Play app category are
 15 substitutes," Ex. 1, Singer Dep. at 158:14–159:14; *see also id.* at 159:21–160:1. He testified that
 16 some apps in each category could be complements rather than substitutes. *Id.* at 159:15–18.² Dr.
 17 Singer's failure to opine that a necessary premise of his pass-through formula exists renders his
 18 formula unreliable. *See Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 594 &
 19 n.19 (1986) (affirming exclusion of expert testimony based on assumptions that were "implausible
 20 and inconsistent with record evidence").

21 **E. Dr. Singer's Pass-Through Formula Reflects Undisclosed Analyses.**

22 Finally, Dr. Singer's pass-through formula should be excluded because it is based on

23
 24 ² Indeed, it is obvious that not all apps in each category are substitutes. *See* Ex. 3, Burtis Rep. ¶¶
 25 158, 308. Because developers choose a category for their app when they list it in Google Play, Ex.
 26 1, Singer Dep. at 90:3–6, the categories cannot reflect any relationship between prices and demand
 27 for apps in the category. As a result, the Business category includes both "package tracking" and
 28 "email management" apps; the Finance category includes "ATM finders" and apps related to
 insurance; and the Productivity category includes both calendar apps and calculator apps. *See*
 Google Play, "Choose a category and tags for your app or game," Google Support,
<https://support.google.com/googleplay/android-developer/answer/9859673>.

undisclosed analyses. Dr. Singer concedes that “the pass-through rate is going to depend on the shape of the demand curve.” Ex. 1, Singer Dep. at 152:3–6. Dr. Singer’s pass-through formula assumes a “logit” demand curve. *See* Ex. 2, Singer Rep. ¶ 236. Although the article on which Dr. Singer relied includes formulas that assume other demand structures, Dr. Singer decided that logit was the “best model” after testing two others. Ex. 1, Singer Dep. at 152:7–153:6. However, Dr. Singer did not disclose those tests in his reports, *id.* at 152:24–153:12, 174:17–25, so Google has no basis to assess whether his pass-through formula best reflects the structure of real-world demand. Consumer Plaintiffs’ failure to disclose analyses necessary to test Dr. Singer’s pass-through formula requires excluding his testimony based on the formula. *See* Standing Order for Discovery in Civil Cases ¶ 17 (“FRCP 26(a)(2)(B) requires disclosure of all opinions, bases, reasons and other information considered by an expert.”)³

II. DR. SINGER’S FORMULA FOR CALCULATING COMPETITIVE SERVICE FEES IS NOT RELIABLE.

Dr. Singer’s model for showing that Google’s service fees would have been lower for all developers in the first place depends on using his unreliable pass-through rate formula as an input in calculating service fee rates. *See* Ex. 2, Singer Rep. ¶ 264 (explaining variables in but-for service fee calculation, including pass-through). Because Dr. Singer’s pass-through rate formula is unreliable, calculating service fees based on that formula will be unreliable as well.

Dr. Singer’s formula for calculating service fee rates in a more competitive market also yields absurd results. *E.g., In re Air Cargo Shipping Servs. Antitrust Litig.*, No. 06-MD-1175 (JG) (VVP), 2014 WL 7882100, at *57–59 (E.D.N.Y. Oct. 15, 2014), *report and recommendation adopted*, 2015 WL 5093503 (E.D.N.Y. July 10, 2015) (excluding regression yielding “absurd” results). Dr. Singer predicts that, in the but-for world, Google would have charged service fees of 10% for apps in the Entertainment app category and 9.7% for apps in the Music and Audio categories. *See* Ex. 2, Singer Rep. at 134, Table 14. However, Dr. Singer’s own calculations

³ Dr. Singer did not test the formula for AIDS demand to see if that structure of demand best fit the demand for apps. Ex. 1, Singer Dep. at 153:13–154:8. That is problematic because Dr. Singer does not know whether he would even be able to calculate any pass-through rates using the AIDS formula if demand for apps reflected AIDS demand. *Id.* at 154:9–21.

1 estimate that Google's marginal costs are [REDACTED] of current revenues. *Id.* ¶ 212. A formula that
 2 predicts service fees insufficient to cover Google's marginal costs is unreliable. *See In re Apple*
 3 *iPhone Antitrust Litig.*, 2022 WL 1284104, at *5 ("It is not logical that a but-for world would
 4 generate market [service fee] rates which do not anticipate any profit in the foreseeable future.").

5 **III. DR. SINGER'S METHOD FOR CALCULATING ALLEGED INDIVIDUAL**
 6 **CONSUMER IMPACT IS NOT RELIABLE.**

7 Dr. Singer has not calculated the service fee that any individual developer would have been
 8 subject to in a more competitive market or how much any individual developer would have
 9 reduced prices to consumers. Dr. Singer has instead calculated *average* service fee and pass-
 10 through rates for each developer and posited methods for generating individual rates based on
 11 those averages. Ex. 2, Singer Rep. ¶¶ 239, 263. This method is unreliable because it uses average
 12 pass-through rates for all apps in the same category. *Cf. In re Graphics Processing Units Antitrust*
 13 *Litig.*, 253 F.R.D. at 494 ("Sometimes the prices used by economists are averages of a number of
 14 different prices charged to different customers or for somewhat different products. Using such
 15 averages can lead to serious analytical problems.") Dr. Singer effectively assumes that all apps in
 16 the same category would reduce prices by the same proportion. Dr. Singer has no support for this
 17 assumption, which cannot be squared with his concession that not all apps in a category are
 18 substitutes.

19 **IV. DR. SINGER'S MODEL REGARDING PLAY POINTS IS NOT A RELIABLE**
 20 **METHOD OF COMMON PROOF OF ANTITRUST IMPACT.**

21 Dr. Singer proffers an alternative opinion related to Google's Play Points program, a
 22 "loyalty points program" which Dr. Singer calls a "subsidy" for transactions in the Play Store. Ex.
 23 2, Singer Rep. ¶ 245. Less than [REDACTED] of U.S. consumers participated in the Play Points
 24 Program and only [REDACTED] of U.S. consumers redeemed Play Points. Ex. 3, Burtis Rep. ¶ 358; Ex. 4,
 25 Singer Reply Rep. ¶ 98. According to Dr. Singer, Google offered Play Points equivalent to \$0.02
 26 per transaction in the real world, but "the Play Points program would be expanded to be worth an
 27 average of \$0.77 per transaction, or approximately 8.7 percent of consumer spend (in the
 28 competitive but-for world)." Ex. 2, Singer Rep. ¶ 253. Dr. Singer claims that if Google had
 offered Play Points equivalent on average to approximately [REDACTED] of a consumer's

1 transaction, then “the [P]lay [P]oints system would be embraced across the class just as the way
 2 that the points system in the AMEX marketplace is embraced across American Express users.”
 3 Ex. 1, Singer Dep. at 296:6–19, 297:8–21.

4 This is not a reliable method for proving antitrust impact on all consumers. Dr. Singer
 5 conceded that “very few people availed themselves” of the Play Points program in the actual
 6 world, and that “only some of the people that signed up for the [P]lay [P]oints program used their
 7 [P]lay [P]oints.” Ex. 1, Singer Dep. at 288:11–16, 289:17–23. However, Dr. Singer admitted that
 8 he has not “identified any model to determine which users would have signed up for [P]lay
 9 [P]oints in the but-for world,” *id.* at 295:5–20, and has no model “that can tell the Court and the
 10 jury in this case which of the members of the putative class would have signed up for [P]lay
 11 [P]oints and who would have used them.” *Id.* at 297:8–21; *see also id.* at 296:6–19.

12 Thus, when asked whether his opinion is that “every member of the putative class would
 13 have signed up for the [P]lay [P]oints program and used [P]lay [P]oints,” Dr. Singer merely
 14 characterized this as a “fair assumption.” Ex. 1, Singer Dep. at 298:22–299:10. Dr. Singer has not
 15 justified that assumption in his reports. He has not explained why an average of 8.7% in benefits
 16 would have been sufficient to motivate every member of the putative class to sign up and use Play
 17 Points—including the over [REDACTED] class members ([REDACTED]) who spent less than [REDACTED] during the
 18 class period or the over [REDACTED] million class members ([REDACTED]) who only made one purchase during the
 19 class period for whom the amount of benefits would be very small. Ex. 3, Burtis Rep. at 35, Table
 20 3, Exhibit 24. Dr. Singer’s reports do not analyze that issue. Nor do his reports include any
 21 showing that such benefits are in any way comparable in value to the loyalty points offered to
 22 American Express cardholders or any analysis of the redemption rates of those points.

23 Dr. Singer has simply assumed the conclusion that all consumers would have signed up
 24 and used Play Points. Such “*ipse dixit* of the expert” is not a reliable opinion on common antitrust
 25 impact. *Joiner*, 522 U.S. at 146.

26 CONCLUSION

27 The Court should exclude the expert opinions of Dr. Hal J. Singer.

1 Respectfully submitted,

2 DATED: May 26, 2022

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REDACTED VERSION

Exhibit A54 to C. Cramer Declaration

EXHIBIT 1

CONFIDENTIAL-FILED UNDER SEAL

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN FRANCISCO DIVISION

4 -----X
5 IN RE GOOGLE PLAY STORE
6 ANTITRUST LITIGATION
7 Case No. 3:21-md-02981-JD

8 THIS DOCUMENT RELATES TO:
9 Epic Games Inc. v. Google LLC, et al.,
10 Case No. 3:20-cv-05671-JD

11 In Re Google Play Consumer
12 Antitrust Litigation
13 Case No. 3:20-cv-05671-JD

14 In Re Google Play Developer
15 Antitrust Litigation,
16 Case No: 3:20-cv-05792-JD

17 State of Utah, et al., v.
18 Google LLC, et al.,
19 Case No: 3:21-cv-05227-JD

20 -----X

21 VIDEOTAPE DEPOSITION
22 HAL SINGER, PH.D.
23 Thursday, May 12, 2022
24 9:07 a.m. (EST)

25 Reported by:
Ryan K. Black, RPR, CLR, Notary Public

1 developers are passing through savings in order
2 to induce customers to switch to the -- and
3 download the app from the developer's website.

4 So it's not just theory. I mean,
5 obviously, theory is on my side; but I think we
6 have -- we have good evidence to bear as well.

7 Q. But you would agree that standard
8 economic theory tells us that developers would
9 have incentives to respond to lower service fees
10 by reducing their prices?

11 A. Correct.

12 Q. Okay. And standard economics also
13 tells us that competition drives firms to make
14 competitive investments in product quality,
15 right?

16 A. Yes. I believe that, as I said, that
17 in -- in a but-for world with lower take rates
18 and this new-found cash flow that the developers
19 would enjoy, not all of it is going to go into
20 the pockets of the owners. But -- but some of
21 that will be reinvested and -- and -- and in
22 services and features that -- that make the app a
23 better experience for the user.

24 Q. Right. So standard economics would give
25 developers an incentive to respond to lower

1 service fees by reducing prices and improving
2 quality?

3 A. Correct.

4 Q. Now, in your reports, do you have any
5 model that will tell the Court or the jury which
6 developer will follow the incentives to improve
7 quality and which developer will follow the
8 incentives to reduce price?

9 A. Well, I think all developers will reduce
10 price. My opinion on quality is that it would
11 happen at a -- at a general level, but that is
12 not my proof of impact. My proof of impact turns
13 on the price response.

14 Q. Have you done any analysis to determine
15 whether any developer would improve the -- the
16 quality of their app in a world with reduced
17 service fees?

18 A. I don't think I've done analysis.
19 I'm -- I'm aware of some testimony, and we'd have
20 to go into my footnotes of developers testifying
21 that they would do something to that effect. But
22 I -- that's more me just citing a developer than
23 -- you know, than doing -- I took your question
24 to mean original analysis, like trying to model
25 the quality dimension. I don't do that.

1 impression here. It does account for the
2 differentiated nature of the products within the
3 category that it faces. And so the extent that
4 that differentiation is driven in part by quality
5 differences across apps within a category, it
6 does. It does account for it.

7 But -- but I'm taking your question to
8 mean -- I'm still going back, and I'll just say
9 it again, that I don't have a separate model
10 apart from the model that -- that you're aware of
11 that -- that -- that attempts to measure changes
12 in quality enhancements by apps in a but-for
13 world, you know, absent the restraints.

14 Q. But, in fact, the model you have
15 regarding the alleged reduction in prices doesn't
16 measure the amount that any developer will invest
17 in quality either, right?

18 A. It -- so to be careful, it -- it
19 measures -- by -- by taking into account the
20 differentiation among apps in -- in the same
21 category, it takes -- it takes quality into
22 account. But whether or not it -- it seek -- it
23 does not seek to measure changes in quality that
24 would come about from a more competitive
25 landscape.

1 Q. And -- and it doesn't measure whether
2 any developer would actually invest, or how much
3 they would invest, in improving the quality of
4 their app in the but-for world.

5 A. I think that's fair. Just to be clear,
6 I don't seek to measure the change in investment
7 and -- and quality in the but-for world.

8 Q. Now, your analysis of a potential
9 but-for world assumes entry by a rival app store
10 platform that has a comparable number and quality
11 of apps as the Play Store.

12 A. I -- I don't think I'm ever that
13 explicit in -- in the offerings of the rival.
14 But what I will tell you it -- it turns on, and
15 we're talking about the Rochet-Tirole model, the
16 -- the one in the app distribution market, just
17 to be clear. Is that -- can we -- can we speak
18 to that one? I -- I'm prepared to speak to that
19 one, at least, and to answer this question,
20 'cause you talked about a rival app store.

21 Q. Well, does -- do diff -- do different
22 versions of your model assume different rivals in
23 the but-for world?

24 A. Absolutely. So remember I -- I've --
25 I've got a model for the app distribution market

1 traffic to alternative app stores, you looked
2 at what developers did in the actual world.

3 MS. GIULIANELLI: Objection to form.

4 THE WITNESS: In part. I -- I look at
5 what developers did or try to do in the actual
6 world. I look at the fact that there's a lawsuit
7 that is largely about the anti-steering rules.
8 I look at the -- the economic literature on
9 steering. Also, just there's economic meaning
10 in -- we -- in the -- the most effective
11 distribution path. You know, when we -- I've
12 done exclusive dealing cases before and we're
13 always focused on what channel got shut out and
14 was it -- was it the most efficient distribution
15 channel? I'm sure you're aware of this.

16 And -- and I think that being able to
17 communicate to the -- to your customers that
18 there are lower cost alternatives outside of the
19 Play Store. When they're in the Play Store, or
20 when they're in your app, is the most efficient
21 way.

22 BY MR. RAPHAEL:

23 Q. Have you estimated the cost of any
24 mechanism for driving traffic to alternative app
25 stores for any developer other than steering?

1 MS. GIULIANELLI: Ob -- ob -- ob --
2 objection.

3 THE WITNESS: I haven't estimated, but I
4 can -- I can tell you that if you go out and buy
5 a billboard on a highway, right, and you -- we
6 could go look at the billboard price, right, but
7 it -- I don't think you need to do an empirical
8 assessment of the traffic generation of a
9 billboard vis-à-vis communicating to your
10 customer within the app while you've got the
11 customer's attention that, Hey, if you go outside
12 and -- and download my app from an alternative
13 store or an alternative -- or consummate the
14 transaction through an alternative processor,
15 there's no doubt that that would be the more
16 potent or effective means of communication.

17 BY MR. RAPHAEL:

18 Q. You haven't done any empirical
19 analysis of which method of driving traffic to an
20 alternative app store is most efficient for any
21 developer, correct?

22 A. I have not sought to estimate the
23 returns to investing in billboards, I have not
24 sought the returns to investing in television
25 advertising for -- for Internet transactions,

1 and I've not sought to estimate the returns to
2 investing -- oh, I'm trying to think where else
3 you can do it --

4 Q. Well, you haven't -- you haven't -- you
5 haven't estimated the returns to investing of any
6 kind of advertising for any developer, correct?

7 A. I think it's fair to say that I have not
8 -- I have not considered the return to these
9 alternative advertising channels. But I also
10 point out that the fact that Google does not fret
11 about the developer advertising there implies
12 that Google was concerned about blocking the most
13 efficient distribution channel. That's what the
14 case is about.

15 Q. Okay. Now, do you know -- some
16 developers steer in the actual world, correct?

17 A. Some do. Very few, but, yes, some do.

18 Q. All right. Have you estimated how -- in
19 your reports how many more developers would have
20 to steer in the but-for world to pressure Google
21 to reduce service fees?

22 MS. GIULIANELLI: Objection to the form.

23 THE WITNESS: The -- the model does not
24 require me to come up with the estimate of the
25 amount who would steer, no. Just a sufficient

1 Android. I took your question to mean for the
2 phone -- for the production of a phone.

3 Q. Well, isn't the Android operating system
4 an input into the production of the phone?

5 A. It is. It is an input into the
6 production of the phone, yes.

7 Q. Okay. So if Google offers OEMs a
8 negative price for And -- the Android operating
9 system in the form of -- or as the -- the -- the
10 revenue-share agreements, wouldn't that be
11 equivalent to a reduction in the marginal cost of
12 producing the phone?

13 A. I -- I'd -- I'd have to think about
14 that. It's not how I would explain it, you know,
15 to a economics class. Put it that way. I see it
16 as a -- as a source of revenue, not a -- not a
17 -- not a -- not -- not entering the cost
18 function.

19 Q. Okay. Now, your opinion is that every
20 developer that would have paid lower service fees
21 in the but-for world would have also reduced
22 prices, correct?

23 A. That's correct.

24 Q. Okay. And that's what your pass-through
25 formula that you've provided in your report

1 predicts.

2 A. Correct.

3 Q. Okay. And you're aware, aren't you,
4 that developers choose the category for their app
5 when they list it in Google Play?

6 A. Yes.

7 Q. Now, in your reports, have you
8 calculated or estimated the marginal cost of
9 supplying an additional app subscription or
10 in-app purchaser for any developer?

11 A. I haven't estimated the marginal cost,
12 but I have cited record evidence and economic
13 literature establishing that they do, in fact,
14 incur marginal costs. And I -- I also have the
15 opinion that processing payments are marginal
16 cost, and I also have the opinion that the take
17 rate is a marginal cost. So I --

18 Q. Okay.

19 A. -- leave it at that.

20 Q. Okay. So in your reports, though, you
21 haven't calculated or estimated the marginal cost
22 of supplying an additional app subscription or
23 in-app purchase for any developer.

24 A. No. And the models don't call for that.
25 The -- at least in the short run, all the models

1 require is that they face a positive marginal
2 cost, and I'm confident they do.

3 Q. All right. So the pass-through formula
4 you've used in your reports doesn't actually
5 depend on what the marginal cost of the developer
6 is.

7 MS. GIULIANELLI: Objection.

8 THE WITNESS: That's fair.

9 Do you want to -- I think we're an hour
10 and a half in?

11 MS. GIULIANELLI: You want to --

12 MR. RAPHAEL: Happy to take a break.

13 MS. GIULIANELLI: -- a break?

14 THE WITNESS: Okay. Yes.

15 THE VIDEOGRAPHER: Please stand by.

16 We're now off the record. The time is
17 10:40 a.m.

18 (Recess taken.)

19 THE VIDEOGRAPHER: We're now on the
20 record. The time is 10:50 a.m.

21 BY MR. RAPHAEL:

22 Q. Dr. Singer, have you put forth any
23 method in your reports to determine what each
24 developer's marginal costs are, other than
25 service fees?

1 A. Well, other than the service fees
2 and the processing fees, I haven't estimated
3 precisely the marginal costs. But I have studied
4 the issue of whether they do incur other marginal
5 costs, and I've come to the conclusion that they
6 do; and I cite record evidence in economics
7 articles.

8 Q. And so economics articles would be a
9 good source to determine what the marginal costs
10 for the developers are other than the service
11 fees and transaction fees?

12 A. For identifying the categories of
13 marginal costs but not to -- not to estimate
14 precisely what -- what it is in, say, percentage
15 terms.

16 Q. Okay. Now, your opinion is that
17 acquiring an app -- strike that.

18 Your opinion is that downloading an
19 app and making in-app purchases are separate
20 transactions involving separate products.

21 A. I wouldn't quite put it that way. I
22 would say that the -- the services that are being
23 offered in the in-app for -- in support of in-app
24 transactions are different. It's a different
25 suite of services than the services being offered

1 consumer is complete?

2 A. Certainly not the sales costs.
3 Certainly not the processing fee. Certainly not
4 the take rate.

5 Q. How about the other costs that you've
6 listed here in your report?

7 A. It's possible that some of those other
8 marginal costs identified by Ghose and Han would
9 occur subsequent to -- to a particular
10 transaction, --

11 Q. Okay.

12 A. -- but could still be considered as
13 variable costs in the sense that they rise
14 with -- with output.

15 Q. Okay. Could the marginal cost to a
16 developer of supplying an additional in-app
17 purchase vary from developer to developer?

18 A. Sure.

19 Q. And could some developers have zero
20 marginal costs for an in-app purchase?

21 A. No.

22 Q. Could you go to Page 153 of your report?

23 A. You must mean my initial report
24 because --

25 Q. Correct.

1 A. -- the reply is not -- okay.

2 Page 153?

3 Q. Yes, sir.

4 A. Okay.

5 Q. Do you see there second from the top
6 there's an article by Avi Goldfarb and Catherine
7 Tucker called "Digital Economics"?

8 A. Yes.

9 Q. So that's an article that you've relied
10 on in your report?

11 A. Yes.

12 Q. Are you familiar with that article?

13 A. In part, yes.

14 Q. Okay. Do you know if that article says
15 anything about what marginal costs might be for a
16 digital good?

17 A. No. But if it were just a digital good,
18 I think that might be too broad of a category.
19 We're talking about in-app transactions here.

20 MR. RAPHAEL: I'm going to mark this as
21 Exhibit 335.

22 (Exhibit No. 335, an article titled
23 Digital Economics by Avi Goldfarb and Catherine
24 Tucker, was introduced electronically.)

25 THE REPORTER: Here you go, sir.

1 THE WITNESS: Thanks.

2 BY MR. RAPHAEL:

3 Q. Do you see Exhibit 335, Dr. Singer?

4 A. I do.

5 Q. And what is it?

6 A. It -- it appears to be the article that
7 I cited.

8 Q. That's the "Digital Economics" article
9 by Tucker and Goldfarb?

10 A. Yes.

11 Q. And -- and could you go to Page 12 of
12 the article?

13 A. If you'd let me just -- one second. I'd
14 -- I'd like to just read the abstract quickly.

15 Q. Would you go to Page 12, please?

16 A. Hold on one second.

17 Okay. Page 12.

18 Okay.

19 Q. Do you see at -- further down, say,
20 two-thirds of the way down in the left column,
21 there's a header that says, "The replication cost
22 of digital goods is zero"?

23 A. Yes.

24 Q. So this article that you relied on in
25 your report says that "The replication costs of

1 digital goods is zero," correct?

2 A. Correct.

3 Q. Now, are you familiar with V-Bucks?

4 A. Oh. Can I put this to the side?

5 Q. For now, yes.

6 A. Yeah.

7 And I would just note for the record
8 that replication costs and marginal costs are not
9 the same.

10 Q. Well, how are they different?

11 A. Oh. What -- what Goldfarb is not taking
12 into consideration here is that to sell the extra
13 unit you have to pay a processing fee. That's a
14 marginal cost.

15 So it's true that to create the next
16 sword -- the 150th sword doesn't cost any more to
17 replicate that sword, but that doesn't mean there
18 aren't any marginal costs incurred in the
19 transaction.

20 Q. Understood.

21 All right. Could some developers have
22 negative marginal costs for in-app purchases?

23 A. It's hard to -- to fathom that.

24 Q. What if a developer generates
25 advertising revenue as the result of an in-app

1 Can you give any examples of marginal
2 costs that would be included in the short run, as
3 you defined it, for a developer but would not be
4 included in the long run, as you define it?

5 A. Oh, no, no. It doesn't work that way,
6 right?

7 As you move to the long run, the
8 categories expand. So everything -- every kind
9 of cost that would be considered marginal in the
10 short run, would also be considered marginal or
11 variable in the long run.

12 Q. Okay. Now, pass-through rates are the
13 ratio of the dollar change in the developer's
14 profit-maximizing price that results from a
15 dollar change in marginal cost.

16 A. Can I just hear it back just to make
17 sure?

18 Q. The pass-through rate is a ratio of a
19 dollar change in a developer's profit-maximizing
20 price that results from a dollar change in the
21 developer's marginal cost.

22 A. I think that that is a fair way to put
23 it, yes.

24 Q. Okay. And so any formula for the
25 pass-through rate should account for the

1 relationship between a change in the marginal
2 cost and prices.

3 A. Not necessarily.

4 Q. So -- well, I just want to be -- I don't
5 think I'm saying anything controversial. The --
6 the -- the pass-through rate is trying to measure
7 the relationship between how a marginal cost
8 changes and how a price changes.

9 A. Correct.

10 Q. Right. The effect of the change in
11 marginal cost on the price.

12 A. Correct.

13 Q. Okay. Now, Google's service fee is
14 what an economist would call "an ad valorem fee,"
15 correct?

16 A. I think that's fair.

17 Q. And an ad valorem fee is one that is
18 calculated based on a percentage of the price
19 that is charged?

20 A. Correct.

21 Q. Okay. And sales taxes often are ad
22 valorem fees as well. They're a percentage of
23 the price?

24 A. Yes. And as I said earlier, we see
25 changes in sales prices -- in -- in sales taxes

1 being reflected in the prices of apps in the
2 transaction data.

3 Q. Right. And your opinion is that
4 Google's service fees, to the extent that they
5 are supercompetitive, is equivalent to an
6 increase in the developer's marginal cost.

7 A. It can be understood that way, yes.

8 Q. Right. And in your report, you've
9 modeled the proper economic way to calculate how
10 a profit-maximizing developer would set prices
11 based on marginal costs.

12 A. I have. And --

13 Q. Right.

14 A. -- and, as you know, it depends on
15 the -- the nature of the demand and the demand
16 specification that you assume, right? Each
17 demand specification you assume is going to apply
18 at different pass-through rates.

19 Q. Right. So could you go to Page 104 of
20 your report, your opening report, please?

21 A. Sure.

22 Q. And you'll see this is a continuation of
23 the Paragraph 225 from the previous page.

24 And you've got a formula there that has
25 "P minus C star divided by P equals one divided

1 by E sub D."

2 Do you see that?

3 A. Yes. That's the classic Lerner markup.

4 Q. Right. So that's -- that's the proper
5 economic model for how a profit maximizing
6 developer would set prices based on marginal
7 costs, right?

8 A. That model describes the markup over
9 marginal cost as the function of the elasticity
10 of demand faced by the developer.

11 Q. Right. And -- and this model on Page
12 104 of your opening report, that -- that's --

13 A. So --

14 Q. -- the correct economic mod -- economic
15 way to model how the change in marginal costs
16 will affect the price that the developer charges.

17 A. It's the -- it's the way to think
18 about it at -- at a very, very high level of
19 abstraction. But, as you know, to actually
20 estimate the pass-through rate here, I have to
21 make an assumption about the demands curve and --
22 and -- and the precise nature of demand that a --
23 the developer faces, right?

24 Once you --

25 Q. Understood.

1 A. -- make a -- once you make that
2 decision, you get these pass-through rules,
3 right? And the pass-through rules -- whether you
4 go linear or logit or -- or constant elasticity
5 -- are going to express pass-through as a
6 function of things that do not include the
7 marginal cost.

8 Q. Understood. But this formula on Page
9 104 of your report is the correct economic way to
10 model the relationship between the developer's
11 price and the marginal cost in general?

12 A. Well, I just want to put that caveat in
13 there. It's the -- it's the -- definitely the
14 way to think about it and why it's in my
15 preamble, right?

16 But when I go to model the precise
17 amount of pass-through, I have to make an
18 assumption about what kind of demand the
19 developer faces, right? And that -- that puts
20 me to a -- takes me to a pass-through rule that
21 isn't necessarily going to be denominated in
22 terms of costs.

23 Q. Understood. So -- but -- but this mod
24 -- this economic model you've described in Page
25 104 of your report, that's generally accepted in

1 economics.

2 A. Yes.

3 Q. Now, if you just look at the cost term
4 there, C star, and the -- the C star in that
5 formula that you have on Page 104 of your report
6 is equal to C divided by one minus T, right?

7 A. Correct.

8 Q. And -- and in that -- in that cost term
9 I just described, T is the service fee rate?

10 A. Correct.

11 Q. And C is the developer's per-unit
12 marginal cost other than the service fee?

13 A. Correct. Processing and the like, yes.
14 Any other --

15 Q. Okay.

16 A. Any other types of marginal costs.

17 Q. Okay. And so one input into the
18 generally accepted economic model of how the
19 profit-maximizing developer would set pri --
20 prices is the marginal costs other than the
21 service fee.

22 A. For short-run profit maximization, the
23 answer is, yes, that this model, at this high
24 level of ab -- of abstraction, is a function of
25 the marginal cost.

1 Q. Right. And in terms of how the price is
2 a function of mar -- of --of -- of marginal cost,
3 the -- the -- the formula you've got here on Page
4 104, in that formula, the effect of a change in
5 the service fee -- let me -- let me put it
6 differently.

7 The formula you've got on Page 104, the
8 effect on prices will be -- as a result of a
9 change in the service fee will be proportional to
10 the marginal costs other than the service fee.

11 A. In -- for short-run profit maximization,
12 yes. For -- for long-run profit maximization,
13 this is not -- this is not the -- the way that
14 you'd get to the effect on price.

15 Q. Okay. Now, -- so let me just ask,
16 looking at this cost term here, C -- C star, if C
17 in that formula, which is the marginal cost other
18 than the service fee, if that's zero, then the
19 service fee rate will not have any effect on the
20 ultimate price charged according to this model,
21 correct?

22 A. Let me just say this: It -- it's --
23 it's never zero in the real world. But -- but if
24 you want me to ask -- answer the hypothetical,
25 counterfactually, if we had -- if we had a zero

1 marginal cost, then by this model, and this model
2 alone, then in the short run, prices would not
3 adjust to the take rate.

4 As I explain in my report, there's all
5 sorts of reasons why we would still, even in that
6 extreme and counterfactual assumption, would
7 expect prices to change with the change in the
8 take rate, including from steering, including
9 from having to cover all costs in the long
10 run, --

11 Q. Okay.

12 A. -- including from sticky prices.

13 Q. Okay. Now, let me just ask again,
14 hypothetically, if that term C, which are the
15 marginal costs other than the service fee rate
16 in your formula on Page 104, if that term is
17 negative, then a reduction in the service fee
18 rate will actually lead to an increase in the
19 price that the developer would charge.

20 A. I haven't done that one yet, but I
21 think you've got the -- the sign correct. If you
22 multiply, in that example, 1.43 by a negative
23 cost, I think that there -- there would be a
24 negative relationship in the short run for this
25 equation.

1 Remer and Sheu, right?

2 A. Correct.

3 Q. Okay. Now, if -- if we could look at
4 -- well, let me just ask you: The article you
5 relied upon for the pass-through formula by
6 Miller, Remer and Sheu that formula using a
7 per-unit tax rather than an ad valorem tax,
8 right?

9 A. No. It's much more general than that.
10 They are looking at just -- under any logit
11 demand model, they're asking what is the optimal
12 pass-through rule when the firms in -- are
13 competing under the logit model.

14 Q. Could you go to the -- Paragraph 239 of
15 your report?

16 A. Sure.

17 Q. To the bottom of Page 110.

18 A. Okay.

19 Q. And do you see there you have a
20 formula that's "M minus Q sub J divided by M"?

21 A. Yes.

22 Q. And that's your formula for the
23 pass-through rate, correct?

24 A. It -- it is the logit formula. I wish I
25 had invented it. But it's the logit formula,

1 yes.

2 Q. Right. And that's the formula you've
3 used to calculate pass-through rates in this
4 case.

5 A. Correct.

6 Q. And that formula is derived from
7 Equation 6 of the Miller, Remer and Sheu article
8 that you've cited in your report.

9 A. Correct.

10 Q. Okay. Now, let me mark as Exhibit 356
11 the Miller and Sheu article.

12 (Exhibit No. 336, a document titled
13 Economics Letters - Using cost pass-through to
14 calibrate demand, by Miller, Remer and Sheu, was
15 introduced.)

16 BY MR. RAPHAEL:

17 Q. Is Exhibit 356 [sic] the article you've
18 relied on to derive the pass-through rate formula
19 you've used in this case?

20 A. Yes.

21 Q. Could you go to Page 452 of that
22 article?

23 And in the left column just below the
24 header numbered 2, do you see that there's a
25 paragraph that begins, "Now suppose that a

1 per-unit tax is levied on each product in the
2 model"? Do you see that?

3 A. Yes.

4 Q. So the general model of cost
5 pass-through from the article that you relied on
6 for your pass-through rate formula assumes a
7 per-unit tax, correct?

8 A. Well, this is in a different section.
9 This is in Section 2. I'm looking at Section 3.

10 Q. Is it your testimony, sir, that the
11 logit demand model in Equation 6 in the Miller,
12 Sheu and Remer article you relied on for your
13 pass-through formula includes an ad valorem tax?

14 A. There's no -- there's no tax needed.
15 This is what the -- this is what the pass-through
16 rate would be under logit regardless of whether
17 there's a tax.

18 Q. Sir, my question was whether the formula
19 -- the Equation 6 from the article you relied
20 upon for your pass-through formula in your report
21 assumes an ad valorem tax.

22 A. No. Equation 6 does not assume an ad
23 valorem tax.

24 Q. Okay.

25 A. No, it does not.

1 incremental cost, we're going to get the
2 pass-through in this model.

3 Q. Okay. I just want to understand: The
4 Miller article that you relied on for your
5 pass-through formula uses a per-unit tax,
6 correct?

7 A. I've acknowledged that in a prior
8 section, in Section 2, there is a -- a per-unit
9 tax assumed. Yes, that is --

10 Q. And --

11 A. -- correct.

12 Q. And how about Equation 6 that is derived
13 from that general model, which is the equation
14 you relied on for your pass-through formula?
15 Does that assume a per-unit tax?

16 A. There's no mention of the per-unit tax
17 in -- in Part 3, so I don't think that a per-unit
18 tax is necessary to solve for this pass-through
19 rate.

20 Q. Your testimony is that the Equation 6
21 isn't derived from the general model of
22 pass-through on Page 452?

23 A. I cannot find the per-unit tax mentioned
24 either in the surrounding text of Part 3 or in
25 the math. Maybe you could point me to it.

1 Q. Well --

2 A. I -- I think that the way Equation 6
3 should be interpreted is how prices change in the
4 logit model given a change in marginal cost,
5 period.

6 Q. Right. But, sir, you've testified that
7 to the extent that the -- to the extent that the
8 price will change -- strike that.

9 You've testified that to the extent that
10 the service fee is a change in the marginal cost,
11 it will affect the price of a -- of the
12 transaction proportional to the other marginal
13 costs, correct?

14 A. In -- in a very general statement of the
15 demand model, that is true. But once you go into
16 -- to the logit, the cost no longer enters into
17 the pass-through formula.

18 Q. Okay. So let's go -- why don't we go to
19 Table 5 of your report.

20 A. Okay.

21 Q. And that's on Page 98 of your opening
22 report.

23 Now, if you look at the top of the
24 table, this is the actual world, right? And you
25 see that there you have something called "Google

1 Price," which I think is Google's average service
2 fee across in-app purchase transactions in the
3 actual world, correct?

4 A. Yes.

5 Q. And that figure is [REDACTED]

6 A. Correct.

7 Q. Now you say, "In the but-for world,
8 Google's average service fee will drop to [REDACTED]
9 for in-app purchases," right?

10 A. Correct.

11 Q. And so the difference there in Google's
12 service fee on average to developers for in-app
13 purchases is [REDACTED]?

14 A. Correct.

15 Q. So the reduction in the service fee
16 between the actual and but-for world on average
17 that you've calculated for in-app purchases would
18 be [REDACTED], correct?

19 A. Assuming you're doing the [REDACTED] minus
20 [REDACTED]?

21 Q. Right.

22 A. That's correct, yes.

23 Q. Okay. Now, that reduction in service
24 fee will affect the price of the transaction that
25 is charged to the consumer proportional to other

1 marginal costs, correct?

2 A. I think not in Stage 1 when I do the
3 logit. It's not -- it's no longer going to
4 necessarily be proportional. I think that in
5 Stage 2, when we do a conversion of how we use
6 the pass-through in the Rochet-Tirole model, we
7 are taking into account the proportionality.

8 Q. Okay. But in -- in -- the -- the way
9 that you've done it here in Table 5 is that
10 you've just taken the pass-through rate of 89.9
11 percent, which is the average you calculated, and
12 you've just applied that to the entire reduction
13 in service fee that you've calculated, right?

14 A. I don't understand the question. Sorry.

15 Q. So, you have consumer savings per
16 transaction of \$1.34, right, for in-app purchases
17 in the but-for world?

18 A. Oh, yes. Yes.

19 Q. Okay. So that's just 89.9 percent,
20 which is the pass-through rate that you've
21 calculated on average of the reduction in the
22 service fee of \$1.49, right?

23 A. Correct.

24 Q. So your model for how prices will be set
25 in the but-for world for in -- at -- for in-app

1 purchases just assumes that all of the reduction
2 in service fee will be passed through as a
3 reduction in marginal cost, at least to the
4 extent of the pass-through rate, right?

5 A. Not all of it. 89 percent of it.

6 Q. Right. But you haven't done anything
7 here to reflect the fact that the affect on the
8 price will be proportional to other marginal
9 costs, correct? You've just taken the
10 pass-through rate of 89 percent and applied it to
11 the reduction in service fee.

12 A. That's correct. For in-app, that is
13 correct.

14 Q. Okay. And that's reflective of the
15 general pass-through model you've -- you know,
16 you've used to calculate and propose to calculate
17 damages in this case. Table 5 is.

18 A. Well, for -- for the in-app market, yes.
19 For -- for the treatment in the app distribution
20 market, it's a little more complicated --

21 Q. Right.

22 A. -- the way that the pass-through rate
23 enters the calculus.

24 Q. Right. So just -- and just so we're
25 clear, the -- the method that you've used for

1 then applied the difference in the pass-through
2 rate from Table 5, you know, you would expect to
3 get the same results.

4 A. I'm not -- not sure if I'm following.
5 But I -- but I can say that there are other ways
6 that you could go from -- from the -- from the
7 formula in 104, but all of them would require you
8 to make an assumption about the nature of the
9 demand.

10 Q. Okay. Could you use the formula in
11 Paragraph 225 of your report that's on Page 104
12 to calculate the change in marginal cost for the
13 developer and then apply the pass-through rate to
14 that?

15 A. Not really, because it's -- it's
16 difficult to -- to estimate the change in
17 marginal cost from the developer's perspective.

18 Q. And that's because you don't know the
19 other marginal costs.

20 A. Cor -- we don't -- we -- we know of
21 their existence, but we -- we don't know what
22 their magnitudes are.

23 Q. Okay. The formula from Miller,
24 Remer and Sheu that you used to derive your
25 pass-through formula, that's associated with a

1 Q. Did you calculate them for -- on a de
2 -- developer -- per-developer basis or a per-app
3 basis?

4 A. It was at the app level.

5 Q. Okay. And if you'll go to -- again,
6 back to Paragraph 239 with your pass-through rate
7 formula.

8 A. Okay.

9 Q. And you have the formula there
10 "M minus Q sub J divided by M," right?

11 A. Right.

12 Q. And "M" is the size of the market?

13 A. Correct.

14 Q. And "Q sub J" is the number of
15 transactions involving a particular app.

16 A. Correct.

17 Q. Okay. And the market here, this term
18 "M," is, essentially, the total number of
19 transactions of apps in the same category as the
20 app whose pass-through rate you're trying to
21 measure.

22 A. Correct.

23 Q. And so basically the formula to
24 calculate the pass-through rate for any app that
25 you've put forward is a hundred minus the app

1 share of all transactions in its category.

2 A. Fair.

3 Q. So just by --

4 A. Over -- careful caveat: Over the course
5 of the class period.

6 Q. Okay.

7 A. We're not going to look at it on a
8 daily basis. We're not going to look at like
9 Dr. Burtis. We're not going to look at it on a
10 monthly.

11 Q. Okay.

12 A. We're doing it over the -- over the
13 class period, over the database, over the range
14 of data.

15 Q. Okay. And why do you do it over the
16 class -- whole class period?

17 A. Because I don't think it makes sense as
18 an economic matter that a firm is going to be
19 updating its -- its prices or its pass-through
20 rates on a daily basis. I think that the
21 appropriate measure passed through. There's,
22 basically, going to be too much volatility in the
23 -- in the share, right? If you literally were to
24 do it down to the nanosecond, you'd be -- you'd
25 be getting different pass-through rates at -- at

1 period.

2 BY MR. RAPHAEL:

3 Q. But the pass-through formula you have
4 would predict changes in the pass-through rate
5 from week to week or month to month if the share
6 changes. Fair?

7 A. If one were so inclined to measure it on
8 -- on a monthly or nanosecond basis, yes, you
9 could get very strange results.

10 Q. Okay. Could the formula you've got
11 here, the "M minus Q sub J divided by M," could
12 that be used to calculate pass-through rates in
13 any case where you know the unit market share of
14 an intermediary alleged to have passed on an
15 overcharge?

16 A. I -- I -- I'd be reluctant to say that
17 the logit model could be applied to any case.
18 I'd want to confirm, first, as I did here, that
19 the logit model does a good job explaining the
20 relationship between prices and shares, as it
21 does here.

22 So I think you need some empirical
23 foundation before applying the logit model.
24 I think that would be a good -- good practice.

25 Q. Okay. Have you used the formula that

1 you used to calculate pass-through in this case
2 to calculate pass-through in any other case?

3 A. I do not believe I have. In other
4 cases, what I'm typically doing is regressing
5 retail price changes on wholesale price changes.

6 Q. Okay.

7 A. And that -- that's just not available
8 here.

9 Q. All right. To your knowledge, has
10 any economist used the formula you've used to
11 calculate pass-through in this case to calculate
12 pass-through in some other case?

13 A. I -- I don't -- I don't know enough -- I
14 can't follow how pass-through is calculated in
15 every antitrust case. I can tell you that the
16 logit assumption is one of the most common
17 assumptions that's used in antitrust cases there
18 is.

19 Q. But --

20 A. All right?

21 Q. But you're not aware of this formula
22 being used to calculate pass-through in another
23 case.

24 A. Oh. Pass-through? Well, the formula
25 is used to calculate price effects from, say,

1 and straightforward to do. Like, if -- I can't
2 imagine someone saying, "Oh, the linear model
3 gives you 0.5 always, so I'm going to publish a
4 paper and I'm going to show you here's the
5 implied pass-through rate." I don't think that's
6 the kind of thing that a journal would be excited
7 to publish, right?

8 Q. Well, let me ask it this way: Have
9 you -- have you seen any -- are you aware of
10 any published paper by an economist in a
11 peer-reviewed journal that has used the formula
12 related to logit demand from this Miller article
13 to calculate pass-through in any industry?

14 A. Just pa -- I'm not. But pass-through
15 just isn't an area where -- empirical-applied
16 pass-through rates? I -- I -- I imagine that
17 the number of publications of -- of implied
18 pass-through rates, or even -- even observed
19 directly pass-through rates, is just not fodder
20 for -- for publication. It's just not -- it's --
21 it's the kind of thing that an -- that it would
22 be more likely to come up in an antitrust case
23 where the economist has to estimate pass-through.

24 Q. Right. But you haven't -- you're just
25 not aware of any article where an economist has

1 done that in a -- in a peer-reviewed piece.

2 A. I'm not -- I'm not aware of it, no.

3 Q. Okay. Now, you would agree that the
4 pass-through rate is going to depend on the shape
5 of the demand curve.

6 A. Sure.

7 Q. And the Miller article that you relied
8 on for your pass-through formula has several
9 other formulas for other shape demand curves that
10 you didn't use.

11 A. I ended up doing a lot of different
12 demand curves. But the one that I ultimately
13 used and relied upon was the logit model.

14 Q. Okay. And why did you choose the
15 formula from the Miller article that was
16 associated with logit demand?

17 A. Well, hold on. That was a non sequitur.
18 I -- once I figured out the logit was
19 the best model at explaining the variation in the
20 data, that took me to the implied pass-through
21 rate from the logit model.

22 Q. Understood. And what did you do to
23 figure out that the -- let me ask it differently.

24 Did you -- did you test the structure of
25 demand using any other formula besides the

1 formula associated with logit demand?

2 A. Yes.

3 Q. What other structures of demand did you
4 test?

5 A. I tested linear and I tested constant
6 elasticity.

7 Q. Okay. And did you describe those tests
8 in your report?

9 A. No. Because I ultimately didn't rely on
10 them. The -- they just did not do as -- as good
11 of a job and explain variations in the data as
12 the logit model.

13 Q. Okay. And then how about the AIDS
14 demand? Did you -- in your reports, did you talk
15 about any test that you did to see whether demand
16 for apps fit that structure of demand?

17 A. No.

18 Q. Okay. Why not?

19 A. I felt that the logit did such a good
20 job at explaining variation, that the way to kick
21 the tires was to try linear and -- and constant
22 elasticity. These are the three, you know,
23 primary models. I'd grant you that A -- the AIDS
24 is also up there, but I felt that I had -- I had
25 run a sufficient test to convince me that -- that

1 the logit model was giving us the best fit of the
2 data, and it was giving us -- it lent itself --
3 through Miller it lent itself to pass-through
4 rates that were producing numbers that were
5 reliable and that varied across app categories.

6 And, you know, and as I said before,
7 logit is a very common system. So I felt very --
8 I felt very good in -- in using it.

9 Q. Right. But you haven't used any -- you
10 haven't used the formula from the AIDS demand
11 from the Miller article that you relied on to
12 calculate pass-through rates.

13 A. That's true. I have not.

14 Q. Do you know if that formula would
15 actually solve?

16 A. I'd have to -- I'd have to employ it to
17 be able to -- to tell you whether or not I could
18 -- I could get im -- implied pass-through rates.

19 Q. So sitting here today, you don't know
20 one way or the other.

21 A. I don't.

22

23

24 Q. Okay. Now, logit demand has the
25 independence of relevant alternatives property?

1 they would land on Microsoft's productivity
2 package would be higher than if they were to land
3 on some obscure package within productivity apps.
4 I mean, it's -- it's very intuitive. It's very
5 natural.

6 Q. Now, your pass-through formula is based
7 on logit demand.

8 A. Yes.

9 Q. And one feature of logit demand is that
10 all goods in the market where demand is being
11 measured are substitutes.

12 A. I think that's a general -- that is
13 generally the case. That's fine.

14 Q. Okay. Is it your opinion that all apps
15 in each Google Play app category are substitutes?

16 A. No. And that's why I invoked this
17 concept of cluster markets. Like, you could --
18 you could take Microsoft's Excel and Microsoft's
19 Word and ask me if they're substitutes, and I
20 would say at -- at that level, they're not.
21 But -- but when you think about the fact that
22 Microsoft and Google are actually competing with
23 a package of productivity apps, that -- that it
24 would make sense to think of that as something
25 more akin to a cluster market the way that we saw

1 in the Staples and Office Depot case, that paper
2 clips and a ruler aren't necessarily substitutes;
3 but if the people generally tend to buy those
4 things from the same place, they can belong in
5 the same product market.

6 Q. So -- but -- but it's not your opinion
7 that all apps in each Google Play app category
8 are substitutes.

9 A. I just gave an example of Excel and Word
10 as being more -- more of complements, right? But
11 -- but when you think about the -- the cat -- the
12 productivity suite that Google is offering, that
13 -- that's clearly a substitute to what -- what
14 Microsoft is offering in its productivity suite.

15 Q. Right. So some of the apps in each
16 Google Play category could be complements,
17 correct?

18 A. They could be.

19 Q. And some could be substitutes.

20 A. They could be, yes.

21 Q. Right. And you haven't put forth a
22 model in your report to determine which apps in
23 each category are complements and which are
24 substitutes?

25 A. No. And it's not necessary to get the

1 implied pass-through rate.

2 Q. Right.

3 Could you go to Paragraph 78 of your
4 reply report -- well, actually, let me ask you:
5 Are you opining that all apps in each category
6 are part of a cluster market?

7 A. No. You -- you saw in my report. I'm
8 saying that they don't need to necessarily be a
9 market, a relevant market, for antitrust
10 purposes, and I give you a citation for that.

11 I think that if you -- if you really
12 wanted to -- if you forced it into that box,
13 which is unnecessary and unnatural, that you
14 could -- you could get there by -- by
15 understanding the categories functioning
16 more like a cluster market.

17 Q. Right. But you're not actually offering
18 the opinion that all of the apps in each category
19 are part of a cluster market.

20 A. No. I -- I'm offering the opinion that
21 -- that everything within the category -- that
22 the category definitions from Google define the
23 -- the contours or the arena of competition among
24 apps in that category.

25 Q. Okay. And, again, let's go to Paragraph

1 Q. Let me -- let me ask a different
2 question. You haven't calculated what those
3 switching costs are.

4 A. I haven't calculated it, no.

5 Q. All right. So you ran a regression in
6 your opening report, correct?

7 A. Well, I ran so many, I'm not sure which
8 one you're speaking of.

9 Q. So let me -- fair point.
10 You ran a set of regressions in your
11 opening report.

12 A. Yes.

13 Q. Okay. Now, those regressions are
14 testing the elasticity of demand for apps based
15 on a change in the price of the app, right?

16 A. As instrumented via change in the tax
17 rate, correct.

18 Q. Okay. Now, the regression you ran in
19 preparing your opening report isn't measuring how
20 a service fee change affects the price of an app
21 or an in-app purchase, right?

22 A. Correct. We've been through this
23 before. If -- if Google had varied its service
24 fee across more than a tiny amount of
25 transactions, I -- I could have employed a

1 different model, but I couldn't given the
2 restraint.

3 Q. Right. So just -- I -- I understand.
4 I just want to make sure we're clear about what
5 your regression does and -- and it doesn't do.

6 The regressions that you ran in your
7 opening report isn't measuring the effect of the
8 service fee on the price of the app or the in-app
9 purchases, right?

10 A. Correct. It's doing something close so
11 that I can make a prediction about how a change
12 in the service fee would change the prices.

13 Q. And you haven't run any regression that
14 measures how a change in the service fee affects
15 the price of an app or in-app purchases?

16 A. I've -- I haven't -- well, I've tested
17 and -- and analyzed the regressions that were run
18 by Dr. Williams and Burtis that -- that purport
19 to do that or that attempt to do that, but those
20 experiments are so fatally flawed and botched
21 that there is no learning to be done. There's --
22 there's no -- there's no economic knowledge that
23 can be gleaned from those botched experiments.

24 Q. Right. Now, the prices that developers
25 charge in the but-for world might depend on

1 these other dimensions that I just gave you --
2 you know, consistently downward sloping,
3 statistically significant -- and -- and you're
4 looking for a tie-breaker that -- that at that
5 point comparing the R-squared could make sense.

6 Q. So you're saying that you ran -- you ran
7 regressions using linear and log-linear demand?

8 A. Or constant -- we call it "constant" --

9 Q. "Constant" --

10 A. -- "elasticity."

11 Q. "Constant elasticity" demand, and you
12 saw R-squareds that were lower than the R-squared
13 you got for logit?

14 A. Yes. But I don't want you to think that
15 that was dispositive. That was one of many
16 dimensions over which I made the -- the call.

17 Q. Right. But the regressions you ran for
18 linear and constant-elasticity demand, those
19 weren't included in the reports or the backup to
20 your reports that you disclosed, right?

21 A. I did not turn over those regressions,
22 but you can -- your -- your economists can run
23 them for themselves to get confirmation that --
24 that they don't do as good of a job explaining
25 that data.

1 that uses a dollar amount of sales tax?

2 A. Well, in the field -- it's one of the
3 fields in the transaction data that says "taxes",
4 and it -- it is -- it is stated in dollars, I
5 believe, not as percentage. So we get to see
6 what the relationship is between those changes,
7 right, as -- as predictive -- how predictive they
8 are to changes in prices. The fact that they may
9 be denominated in dollars doesn't mean they don't
10 come from ad valorem. I'm pretty confident that
11 they are always -- or that generally -- just to
12 be safe, they're generally set as a percentage of
13 revenues.

14 Q. Understood. But as you input them into
15 your model regarding the relationship between the
16 sales taxes and the prices, they were in dollar
17 terms and not percentage terms?

18 A. I believe that's the case. I can -- I
19 can check that out for you in a break, but I
20 believe that the way that it's entered into the
21 database is as dollars.

22 Q. Got it.

23 Now, going back to your formula for
24 pass-through, which, again, is essentially a
25 hundred minus the quantity share of the apps

1 transactions in its category, right?

2 A. That's for the app developer, but I
3 don't present it that way in the report. I
4 present it, as you know, at the category level.

5 Q. Understood.

6 A. Okay.

7 Q. But that's the general math of the
8 formula?

9 A. That's the math.

10 Q. Right. Fair to say that that math will
11 always produce a pass-through rate, unless the
12 app developer or -- has a hundred percent of a
13 Google Play category?

14 A. I think it's fair that -- that you'll
15 get a positive pass-through rate. You won't
16 necessarily get a big one, but you'll get a
17 positive pass-through rate with the exception
18 of the guy who dominates the field. And, you
19 know, again, this is -- hopefully this is
20 intuitive to the non-economist in that -- in that
21 your share is capturing your dominance in this
22 arena of competition. And so what the logit
23 model is telling us is that the more dominant you
24 are, the less -- the smaller percentage of the
25 pass -- of a cost saving you share with your --

1 with your client.

2 Q. Right. But just so we're clear, unless
3 the app has a hundred percent quantity share in
4 the category, your formula will predict a
5 positive pass-through rate?

6 A. For a given app developer, that -- that
7 is correct, yes.

8 Q. Okay. Now, you talked earlier about
9 the pass-through formula you have, potentially
10 predicting different rates from month to month or
11 week to week. We talked about that a little bit.

12 A. Yeah. If you were to measure it on a
13 monthly basis, there would be some variation that
14 you wouldn't get if you were to measure it across
15 the -- the class period. That is correct.

16 Q. Right. And your opinion is that it's
17 not appropriate to measure it on that short of a
18 time scale, correct?

19 A. Correct.

20 Q. Right. And what's the economic basis
21 for why it's inappropriate to measure it on that
22 week to week or month to month or those sorts of
23 time frames?

24 A. I don't think that an app developer
25 is going to revisit its pricing on a -- on a

1 Q. And that amount that is passed through
2 as a price deduction is \$1.34 on average for
3 in-app purchases of price reduction in the
4 but-for world?

5 A. Correct.

6 Q. So here you've assumed that the -- for
7 in-app purchases in the but-for world, the -- all
8 of the reduction in Google's service fee is a
9 marginal cost that will affect the price that
10 developers set in the but-for world?

11 A. Correct.

12 Q. Now -- and in -- in calculating how
13 prices will be set in the but-for world based on
14 a reduction of this service fee, again, in the
15 in-app purchase context, this calculation doesn't
16 reference the developer's other marginal costs in
17 any way?

18 A. Correct.

19 Q. Okay. Now, if you could go to Page
20 -- sorry, again, back to paragraph -- Page 104 of
21 your report with the formula in Paragraph 225, so
22 the -- you have this cost term here C star. Do
23 you see that?

24 A. Yes.

25 Q. And that's C, which are the developer's

1 mean, perhaps that's the percentage, but the
2 dollar amount depends on what the other marginal
3 costs are?

4 A. Yeah. But you don't need to. That's
5 why I expressed it just as C here. I didn't need
6 to use a dollar for my example. But -- but I can
7 just tell you, we can do the math here, but as
8 you toggle between 30 and 15 percent, the delta
9 on that -- on that coefficient is going to be
10 1.43 minus 1.18, and that should be understood as
11 a change in percent, right -- change in
12 percentage points of the boosting power of the
13 take rate.

14 Q. Understood. I just want to -- I just
15 want to be clear because I'm going to -- I want
16 us to just do some math here and see where it
17 goes, --

18 A. Okay.

19 Q. -- if you'll follow me.

20 So the -- if -- if the developers'
21 marginal cost is a dollar and the service fee
22 rate changes from 30 percent to 15 percent, your
23 economic model on Page 104 of your report says
24 that the effective marginal cost will drop by 25
25 cents.

1 A. If that's the difference of 43 and 18,
2 sounds right, yeah, times the cost, I think
3 that's fair. Yeah, it's the equivalent of, like,
4 a 25 cent.

5 Q. Okay. But if you go back to Table 5,
6 your -- your calculations for damage purposes say
7 that the reduction in marginal cost is \$1.49,
8 right? On average, right?

9 A. Correct.

10 Q. Okay. So what marginal cost of the
11 developer besides the service fees does that
12 \$1.49 reflect?

13 A. A different one.

14 Q. Which one?

15 A. Oh, whatever the -- whatever the unknown
16 marginal cost is to the developers on average. I
17 mean, the beauty of the -- of the logit is that
18 we don't need to estimate the marginal costs in
19 order to get to the pass-through rate. But there
20 is a marginal cost going on in the background,
21 as the math simplifies when you saw for the
22 pass-through rate, such that you don't need to
23 know what it is.

24 Q. Right. So the logit model in the
25 formula you've used does not depend in any way on

1 what the other developer's marginal cost is?

2 A. Not a precise estimate of what it is.

3 Just it depends on the fact, I believe, --

4 Q. Right.

5 A. -- that there is a marginal cost.

6 Q. So -- so let's assume that the average
7 marginal cost of all de -- of all developers was
8 a dollar --

9 A. Well, why would you assume that when the
10 price here is at [REDACTED]? Are we going to assume
11 that -- that the margins are that high on average
12 for the developers?

13 Q. Well, I mean, to be clear, you haven't
14 calculated any of this, right?

15 A. I didn't need to calculate it.

16 Q. Okay. And because you didn't need to
17 you didn't?

18 A. Correct.

19 Q. Okay. So -- but if it were the case
20 that the average marginal cost for all developers
21 were a dollar, then the average reduction in
22 service -- the average reduction in the effective
23 marginal costs for developers would be 25 cents
24 according to your formula in Paragraph 225 and
25 not [REDACTED] that you have in Table 5?

1 that's being charged for these transactions here.
2 So you're -- you're giving -- you're assuming
3 quite a luxurious margin for the app developer to
4 make that -- that math hold.

5 Q. Fine, sir. I'm just asking whether, if
6 that were the case, that the math that I'm giving
7 you, that the effective reduction in marginal
8 costs from a 30 percent service fee to a 15
9 percent service fee for a developer with a dollar
10 marginal cost would be 25 cents instead of the
11 [REDACTED]?

12 A. All I'll -- all I'll grant you is that
13 if you go to your equation -- your preferred
14 equation on Page 104 and make the assumptions
15 that you did with a dollar and the move from 30
16 to 15, the math would suggest 25 -- 25 percentage
17 points of the margin cost. If you assume the
18 margin cost is a dollar, then it would be 25
19 cents.

20 Q. Right. And so what I'm -- what I'm
21 -- so you agree with me, then, that if you
22 actually calculated the average marginal cost for
23 what -- for a developer on an in-app purchase, it
24 could change the effective marginal cost paid by
25 the increase for the developer in an amount

1 that's less than the [REDACTED] that you have here in
2 Table 5?

3 A. No, you don't need to do that under the
4 logit model. I will grant you that under Page
5 104, the generalized equation, that had I used
6 that to estimate my pass-through, that it would
7 depend on the marginal cost. But knowing that I
8 couldn't observe the marginal cost, right, I
9 -- among myriad other reasons that I gave you, I
10 went with the logit model because I didn't need
11 to estimate the marginal cost of the developer.

12 Q. Right. So you -- so you went with the
13 logit model for pass-through that you used in
14 your report rather than the formula in page -- on
15 Page 104 that depends on marginal costs because
16 you couldn't observe the marginal costs?

17 A. No. That wasn't the only reason. It
18 was another beneficial property of logit that it
19 doesn't require you to go out and estimate a
20 variable that might be impossible to observe,
21 right? And so -- but that's not -- that's not
22 the only reason or the primary reason why I chose
23 logit. It just happens to be a beneficial
24 property.

25 Q. Why would the model in Paragraph 225 not

1 apply to a model of logit demand if the -- if the
2 model in Paragraph 104 is a generic model?

3 A. Well, because the logit pass-through
4 rule states pass-through as a function of
5 industry concentration and not of cost, and so
6 when you asked me why doesn't -- you're asking me
7 basically why isn't the pass-through rate under
8 logit changing with the change in costs. It
9 doesn't. It's just a property of the logit
10 demand. It doesn't make the math on 104 wrong.
11 It doesn't make the logit wrong. It just -- it's
12 no longer a function of cost.

13 Q. So the property of the logit demand
14 model that you used for your pass-through is that
15 the price is a function of the concentration and
16 not of the cost?

17 A. The pass-through is a function of the
18 concentration, not of the cost, correct.

19 Q. All right. What is focal point pricing?

20 A. Focal point pricing is the notion that a
21 consumer might focus on the -- on the first digit
22 before the decimal, as opposed to the last two.
23 So it explains why a lot of firms end -- end
24 their prices in 99 cents, or other -- or other
25 combinations. Just a greater focus on the first

1 -- on the stuff before the decimal place than --
2 than after the decimal place.

3 Q. Okay. And do you -- focal point pricing
4 is a well-established concept in economics?

5 A. Sure.

6 Q. And in the real world, many developers
7 price transactions only at certain focal points?

8 MS. GIULIANELLI: Objection.

9 THE WITNESS: We -- we've -- I've given
10 you all the stats that I think you could ever
11 want to see and more, but, you know, we know that
12 a lot do but a lot don't. You know, [REDACTED] percent
13 of the top [REDACTED] don't end in 99 cents, right,
14 which is a big number.

15 BY MR. RAPHAEL:

16 Q. So fair to say, though, that in the real
17 world some developers price in way that seems
18 like they're focal point pricing and some
19 developers don't?

20 A. Given -- given the constraints that
21 Google imposed on some developers, yes, they
22 -- you know, they did price at 99 cents.

23 Q. Well, what analysis have you done, sir,
24 in your reports to determine what effect Google
25 -- any constraints that Google imposed on

1 BY MR. RAPHAEL:

2 Q. I guess what I'm asking is, is it your
3 opinion that focal point pricing doesn't explain
4 any developers' pricing in the actual world?

5 A. No, I think that's too harsh. I think
6 that focal point pricing is an important
7 consideration here.

8 Q. Okay. Now, and -- and the price floor
9 you talked about of setting prices at 99 cents,
10 that wouldn't affect developers who set their
11 prices quite a bit above 99 cents?

12 A. That's fair. I think that, when we
13 looked at the data, it's about -- it's about [REDACTED]
14 percent of developers were at that 99 cent, so I
15 agree with you that -- that those would be the
16 ones who were constrained from -- from moving
17 downward.

18 Q. Okay. So the other [REDACTED] percent of
19 developers wouldn't be affected by what you're
20 calling the price floor that Google had in place?

21 A. Correct.

22 Q. Okay.

23 A. With one caveat in the sense that there
24 could be spillover effects from a floor being set
25 at 99 on what the next step up would be, but I

1 out, for the purposes of impact, is to say that
2 if all app developers within a category achieved
3 a certain cost reduction by virtue of enhanced
4 competition and, thereby, lower take rate, how
5 much of that would be shared with consumers in
6 the aggregate across the category. And, you
7 know, what I'm hearing is, oh, my God, have you
8 ruled out 99-cent things or things that end in 9?
9 No, we haven't -- we haven't ruled that out. But
10 we're talking about the share of the costs that
11 are being saved in the aggregate across a
12 category. We can allow for 79-cent pricing, we
13 can allow for 99-cent pricing, 29-cent pricing in
14 the but-for world. We're not putting any
15 restrictions on -- on what the price of a
16 particular app in a particular plan at a
17 particular point in time are.

18 BY MR. RAPHAEL:

19 Q. Right. So I just want to make sure I
20 get an answer to my question. So your model for
21 a pass-through isn't trying to take account in
22 any specific way for the phenomenon of focal
23 point pricing?

24 A. I -- I don't -- I don't think that the
25 mod -- that particular logit estimate of the 89

1 percent is accounting or needs to take account.
2 I think I need to account for it in my overall
3 opinions about what the but-for world would look
4 like. But the logit model is just telling us
5 what the implied pass-through rate is given a
6 reduction in costs, given the concentration
7 -- the typical concentration we see within
8 categories in -- you know, in the app industry.

9 Q. Okay. Your regressions regarding the
10 logit demand, did they have any fixed effect or
11 other mechanism to control for focal point
12 pricing?

13 A. Well, they did use fixed effects. I
14 don't know if you meant to say that, but they
15 don't have a separate control variable for focal
16 point. But it is true, now that you brought this
17 up, we do have app fixed effects, right? So to
18 the extent that an app stayed constant at a given
19 price over time or always ended at 99 -- let me
20 just say for the record what fixed effects is.
21 Quite literally, it's controlling for any of
22 these attributes of the app that are constant
23 over time. And so if that tendency to want to
24 end in 99 or 79 or 69 is constant, then, yes, my
25 regressions control for it.

1 monopoly power.

2 Q. Okay. Now, service fees on platforms
3 other than Google Play are marginal costs for
4 developers as well, right?

5 A. The service fee or the take rate charged
6 by Google to the developer can be understood as a
7 marginal cost.

8 Q. And when service fees are charged to
9 developers on other platforms that may compete
10 with Google Play, those are also properly
11 understood as marginal costs for the developers?

12 A. Correct.

13 Q. Okay. So if we saw service fees on
14 other platforms that are lower than Google Play's
15 service fees, those would be lower marginal costs
16 to those developers. Fair?

17 A. Fair.

18 Q. Okay. Now, would you predict, then,
19 that -- well, strike that.

20 In fact, it's true that many developers
21 do not charge different prices on platforms that
22 compete with Google Play that offer lower service
23 fees.

24 A. There are examples of that, sure.

25 Q. And do you know how many developers

1 record. The time is 2:08 p.m.

2 (Recess taken.)

3 THE VIDEOGRAPHER: We're now on the
4 record. The time is 2:10 p.m.

5 BY MR. RAPHAEL:

6 Q. Now that you've got your microphone
7 fixed, it's true, according to your report, that
8 some other app stores charge lower service fees
9 for some transactions than Google charges on
10 Google Play?

11 A. Yes. These -- these diminished
12 competitors, in part by virtue of the challenged
13 conduct, are charging lower, as economic theory
14 would predict they would charge lower. How else
15 would they get someone to switch?

16 Q. Right. And is it the case that all
17 developers charge lower prices on other app
18 stores that have lower service fees?

19 MS. GIULIANELLI: Objection.

20 THE WITNESS: Not all, no.

21 BY MR. RAPHAEL:

22 Q. So some developers charge the same price
23 on other app stores than Google Play where there
24 are lower service fees?

25 A. I would -- I would assume that's a safe

1 -- yeah, that is a safe assumption that you could
2 find examples of app prices being the same across
3 stores under today's, you know, diminished
4 competition where these rivals aren't really
5 offering meaningful substitution opportunities.

6 Q. Have you done any analysis in your
7 reports to determine whether the majority of
8 developers on the Google Play store and another
9 app store charged the same or different prices
10 across stores?

11 A. No, I haven't.

12 Q. Okay. Now, in your report, I think you
13 note that different PC gaming platforms charge
14 different service fees?

15 A. Sure.

16 Q. Right? So Microsoft now charges a 12
17 percent service fee on -- on PC gaming?

18 A. Yes.

19 Q. Okay. And Steam charges more than 12
20 percent for its PC gaming platform?

21 A. I think I give the percentages in my
22 report, but I -- I don't recall them being far
23 off from each other. I think it's a more
24 competitive marketplace.

25 Q. Right. Well, let's go to -- let's

1 skipped a 2. Let me say it again. 3(d)(2)(c).

2 BY MR. RAPHAEL:

3 Q. Okay. We'll come back to that.

4 A. Okay.

5 Q. Have you reviewed transcripts of any
6 testimony by any of the developer plaintiffs in
7 this case?

8 A. Yes. I think I cite some testimony from
9 some developers. I -- I'm not sure if they're
10 plaintiffs in the case, but I -- I recall citing
11 some testimony, at least in my reply, by a
12 developer.

13 MS. GIULIANELLI: And I -- and I'm just
14 going to keep in mind the expert stipulation with
15 respect to the disclosure of materials relied
16 upon.

17 BY MR. RAPHAEL:

18 Q. Okay. So have you relied on any
19 developers' testimony in forming your opinions
20 about how developers would set prices in the
21 but-for world?

22 A. I don't recall having done that.

23 Q. Okay. Now, what analysis have you done
24 to determine the extent to which an inability to
25 steer affected developers from reducing prices in

1 developers.

2 Q. Right. But other than what's in Table
3 9, have you done any empirical analysis of the
4 effect on developers' ability or inability to
5 steer on whether they lowered their prices in
6 response to lowered service fees?

7 A. Other than 9, I -- I don't -- I haven't
8 done one, but what you're asking is a bit of a
9 trick question, which is, in the presence of
10 steering, we -- in the presence of an
11 anti-steering restraint, it is very hard to go
12 out and measure what the effect of steering would
13 be on -- on pass-through or app pricing.

14 Q. Okay. Now, your opinion is that
15 directing customers from inside the app
16 downloaded from the Play Store to options outside
17 of the Play Store is the most efficient channel
18 for steering?

19 A. Correct.

20 Q. Okay. Now, what -- what empirical
21 analysis have you done to support that opinion?

22 A. Yeah. This has been asked and answered,
23 but I'll -- we'll go back through it again, if
24 you want.

25 And let me have the question back again,

1 please.

2 Q. Have you done any empirical analysis to
3 support your opinion that directing customers
4 from inside the app downloaded from the Play
5 Store to options outside of the Play Store is
6 the most efficient channel for steering?

7 A. So I think -- I think it's the same
8 answer that I gave you this morning, that I
9 haven't done original empiricism, but I -- I'm
10 aware that Google has not prevented steering on
11 billboards, television advertisements and
12 Internet advertisements, but they have prevented
13 steering from within the app itself once it's
14 downloaded on the Play Store. And that tells me
15 that, to Google, it's the most important channel.
16 Why would Google block it otherwise, right? So I
17 feel like it's a very natural inference for an
18 economist to make that this is the most -- this
19 is the most efficient.

20 If you -- put it this way: For you to
21 go any other path would incur new costs that you
22 wouldn't otherwise incur by steering within
23 the app store, right? To get someone else's
24 attention on a billboard, you've gotta pay money.
25 You don't need to do that when it's inside of

1 your own app.

2 Q. Do you agree that payment systems
3 that require exiting the app to complete the
4 transaction aren't reasonable substitutes for
5 Google Play billing?

6 MS. GIULIANELLI: Objection.

7 THE WITNESS: I didn't understand it,
8 so --

9 BY MR. RAPHAEL:

10 Q. Are payment systems that would require
11 exiting the app to complete a transaction
12 reasonable substitutes for developers or
13 consumers to using Google Play billing?

14 MS. GIULIANELLI: Same objection.

15 THE WITNESS: I don't know if I have an
16 opinion here, and I'm just not aware of any
17 payment processor who requires the customer
18 to leave the app in order to consummate the
19 purchase? I just -- I'm just not aware -- I'm
20 just not aware that that would even -- that is
21 even a thing. I wasn't aware of that.

22 BY MR. RAPHAEL:

23 Q. Okay. Is there a term in your
24 pass-through rate formula for the extent to which
25 developers can steer?

1 A. No.

2 Q. Why not?

3 A. Well, as you know, I ultimately
4 chose the logit model, and the logit model's
5 pass-through formula simplifies to a function of
6 market share, which is not a term for steering.

7 Q. All right. So the -- the logit
8 pass-through formula that you used to calculate
9 the pass-through rates doesn't depend on
10 steering?

11 A. I would say that steering ensures the
12 pass-through is going to be positive. Logit
13 allows us to estimate precisely what it's going
14 to be.

15 Q. Okay. So fair to say, then, that the --
16 the logit model pass-through formula that you've
17 used in your report depends on steering?

18 A. No, I don't think it depends on steering
19 because we can come up with -- we can come up
20 with explanations for how pass-through would
21 occur in the presence of the anti-steering
22 restraint.

23 Q. So you -- there's reasons why
24 steering would occur despite the anti-steering
25 restrictions?

1 A. No, there's reasons why pass-through
2 would occur.

3 Q. Oh, excuse me. Okay. So there are
4 reasons why -- why you would expect pass-through
5 regardless of the anti-steering restrictions?

6 A. Correct. I think that while it's true
7 that the anti-steering restrictions make for a
8 very potent impediment to steering and
9 pass-through, there are other ways in which
10 pass-through would occur, even without steering.
11 If I could, you know, Google has modeled
12 different worlds, and so I've kind of mimicked
13 the assumption of where the developer could
14 choose its payment processor, right? And you can
15 imagine a world where developers look around at a
16 whole bunch of payment processors in kind of an
17 open and unfettered market and go with the
18 payment processor offering a competitive rate, or
19 one of the lowest rates, and then competition
20 among developers in the same category would put
21 downward pressure on the prices that they charge
22 to their customers.

23 So there are -- there are mechanisms
24 that get you to pass-through and lower prices
25 outside of steering. But I'll always hold, until

1 I'm blue in the face, that steering is like a
2 supercharger. It would -- it would -- it would
3 boost all of these properties.

4 Q. Have you done any analysis to determine
5 by how much it would supercharge all these
6 properties?

7 A. No. But -- no. But what I'm assuming,
8 I mean, at least in my -- when I wrote this
9 report, I'm assuming that the challenged conduct
10 is gone, and part of the challenged conduct is
11 the anti-steering restrictions. And so I'm
12 confident that there would be pass-through; that
13 it would be positive. Now the question is,
14 what's the tool in economics that I can use to
15 reliably estimate the extent of the pass-through,
16 and that was the logit model.

17 Q. Right. Now, Google doesn't restrict any
18 marketing or advertising of other platforms
19 -- strike that.

20 Google doesn't restrict developers from
21 marketing or advertising transactions on other
22 platforms outside of the app that's been
23 downloaded from Google Play.

24 A. That's correct. There -- there's
25 -- Google understands that there would be a

1 newfound cost to be incurred by the developer to
2 advertise in those outside fora, and recognizes
3 that that would be a less-efficient means of
4 communicating, or leading to use Google's word,
5 the customer to a lower-cost platform.

6 Q. Right. In your reports, have you done
7 any analysis to determine the profitability of
8 steering via any channel, whether in app or
9 outside the app, for any developer?

10 A. Well, I did -- I give an analysis
11 -- well, I give a numerical example of how
12 steering -- remember, this is the one that begins
13 with the \$1.99 price --

14 Q. Right.

15 A. -- could improve the profitability of a
16 -- of a developer.

17 Q. Right. But you haven't done any
18 analysis of using, say, actual data of the
19 profitability of steering in any channel for any
20 developer using actual data?

21 A. I have, because Table 9 in my initial
22 report shows steering with -- with price
23 reductions. And so, presumably, they wouldn't --
24 these apps would not be charging a lower price on
25 their website if it weren't profitable to do so.

1 Q. Well, I'm just saying -- I guess
2 what I'm asking is -- maybe I'll ask it this
3 way: Have -- have you done any analysis that
4 compares the profitability of steering for
5 developers via in app communications versus
6 steering using outside of the app communications?

7 A. I haven't, but I know this: That to go
8 outside would require a newfound advertising cost
9 that would not otherwise be incurred if you could
10 do it in-app. And that would necessarily lower
11 the profitability of that -- of that steering
12 relative to steering within the app.

13 Q. Have you done any empirical analysis in
14 your report of whether it would be profitable for
15 any particular developer to reduce prices by a
16 full focal point?

17 A. I don't know what that means.

18 Q. Well, --

19 A. What's a full focal point?

20 Q. Well, you told me what -- what's your
21 definition of a focal point?

22 A. Well, we talked about how it's focusing
23 the attention on the left side of the decimal
24 place so you can kind of go high on the right and
25 it's not really going to scare off the customers.

1 the play points program?

2 A. The reason why that's the case is that
3 at [REDACTED] percent or whatever paltry offering that
4 Google's making given the impaired competition
5 that it caused, it's not even worth figuring it
6 out. It's like -- it's like asking here's a few
7 pennies, go -- go spend. Like, I don't -- don't
8 bother me, I'm not going to enroll and learn how
9 to use the play points when it's set at [REDACTED]
10 percent.

11 Q. My question was in the actual world,
12 it's correct that only some consumers signed up
13 for the play points program?

14 A. In its -- in its existing state of
15 chintziness, yes, very few people availed
16 themselves of -- of the -- of the program.

17 Q. And, in fact, in the actual world, only
18 some of the people who did sign up for the play
19 points program actually used the play points they
20 earned?

21 A. I asked the question why bother. When
22 it's effectively zero, why bother?

23 Q. Okay. But my question was, in the
24 actual world, only some of the people who signed
25 up for the play points program actually used the

1 play points that they earned?

2 A. I can accept that -- that when the
3 -- when the subsidy was at [REDACTED] or
4 whatever paltry amount that was offered, that
5 very -- you'd get very little participation in
6 the program.

7 Q. So the answer to my question is yes?

8 A. I can -- I can accept. I haven't
9 studied what percentage redeemed, but when it's
10 so small -- like, imagine instead of a [REDACTED] it was
11 [REDACTED], right, and you asked me the
12 question, Hal, why isn't anyone, you know,
13 spending time figuring out how to redeem play
14 points, right? I'd say because we're literally
15 taking [REDACTED] off of their -- off of a \$10
16 purchase. Why would you go through it?

17 Q. I understand that you think that the
18 play points were paltry. My question is it's
19 just a fact that only some of the people that
20 signed up for the play points program used their
21 play points, right?

22 A. I can accept that fact. I haven't
23 studied what percentage have.

24 Q. Okay. So in your reports, you haven't
25 identified any model to determine which

1 -- the -- the flip, you know, where it occurs,
2 but I can -- I can conceive that [REDACTED] is so paltry
3 that it just wouldn't make a difference for
4 consumers.

5 Q. Okay. Now, in your reports have you
6 identified any model to determine which users
7 would have signed up for play points in the
8 but-for world?

9 A. No. I don't need to because what the
10 model is giving me is what Google would pay in
11 the aggregate across all consumers in terms of
12 subsidy. So that 8 percent that comes out of the
13 play points model, and doing by memory, is what
14 happens in the aggregate. So, it's conceivable
15 that -- that some consumers aren't contributing
16 to that -- to that 8 percent or some people are
17 doing it disproportionately, but that is going to
18 be the average subsidy that comes about via the
19 -- that if the locus of competition were to occur
20 on the points side of the market.

21 Q. So the answer to my question is, no, you
22 -- in your reports you haven't put forth any
23 model to determine which users would have signed
24 up for play points in the but-for world?

25 A. I don't think I need to, just to be

1 clear --

2 Q. I'm not asking you whether you need to.

3 A. Okay.

4 Q. So I'm going to ask my question again.

5 A. Okay.

6 Q. In your reports, did you put forth any
7 model to determine in the but-for world which
8 users would have signed up for the play points
9 program?

10 A. That's not what the model is calling
11 for. I'll be clear, the model wants to know
12 -- the model is solving for the size of the
13 subsidy across all consumers, right, and if the
14 model is telling us 8 percent, the way to
15 interpret that -- that -- that parameter is that,
16 on average, the subsidy offered to consumers in
17 the but-for world, if the locus of competition
18 were exclusively on the play points side, right,
19 would be 8 percent.

20 Q. Right. And so the model that you put
21 forward in your report regarding play points
22 isn't telling us anything about what individual
23 consumers would do with respect to signing up for
24 the play points program or using their play
25 points, correct?

1 A. I think the model is. I think that at 8
2 percent, the economic intuition -- well, this is
3 the intuition that I'm drawing from the model --
4 is that when the benefit gets so large, that is
5 going to spur participation and usage in the
6 system.

7 Q. Great.

8 Your -- your testimony here today, sir,
9 is that you have a model in your reports that can
10 tell the Court and the jury in this case which of
11 the members of the putative class would have
12 signed up for play points and who would have used
13 them?

14 MS. GIULIANELLI: Objection to the form.

15 THE WITNESS: I didn't say that. I said
16 that if the but-for subsidy were to rise to 8
17 percent, then it would be embraced -- the play
18 points system would be embraced across the class
19 just as the way that the points system in the
20 AMEX marketplace is embraced across American
21 Express users.

22 BY MR. RAPHAEL:

23 Q. Okay. So I want to -- I want to be
24 clear. You have -- your testimony is that in the
25 but-for world, every member of the putative class

1 would sign up for the play points program and use
2 their play points?

3 MS. GIULIANELLI: Objection.

4 THE WITNESS: I cannot -- this is the
5 first time I've been asked that question. I'm
6 just hearing it afresh, right? I cannot fathom
7 why a user would say, no, take back -- I was
8 going to spend a hundred dollars and I realize
9 you're trying to give me \$8, but, no, I don't
10 want the \$8, I want to spend the full hundred
11 myself. It would be crazy -- it would be crazy
12 to -- to do that.

13 BY MR. RAPHAEL:

14 Q. Sir, in the actual world, some consumers
15 don't sign up for play points or don't use the
16 play points that they earn, correct?

17 A. We've established, I hope, that when you
18 get two cents back on a hundred dollar purchase,
19 I'd say to myself I'm a busy dude, I don't know
20 if I'm going to sign up for this thing and go
21 through the hassle for the [REDACTED] subsidy.

22 Q. Right. And so your testimony is that if
23 Google changed the play points rate that you've
24 put in your report, that every member of the
25 putative class would have signed up for the play

1 points program and used play points?

2 MS. GIULIANELLI: Objection.

3 THE WITNESS: I think -- I think it's a
4 fair assumption. Like, the model certainly is
5 not calling on this, but I think it's a fair
6 assumption that once it goes up to 8 percent that
7 -- that everyone who is making purchases would
8 -- would either redeem it or at least enroll so
9 as to be able -- to be capable of taking the
10 subsidy at -- at those terms.

11 BY MR. RAPHAEL:

12 Q. That's an assumption, though, that
13 you're making. It's not what the model tells
14 you?

15 A. Well, the model spits out, just to be
16 clear, what the average subsidy is across all
17 users.

18 Q. Now, you -- would you agree with me that
19 the counterfactual experiment lies at the heart
20 of antitrust analysis?

21 A. Sure. I mean, it's an important thing.
22 It's -- I don't know if it's at the heart, but
23 you need -- you need to have a counterfactual.
24 You need to model the counterfactual.

25 Q. Could you describe for me the

1 Q. Right. And, so, therefore, you haven't
2 done that?

3 A. Correct. Correct.

4 Q. I just want to be clear that in your
5 model for the but-for world service fee rates,
6 the pass-through rate, the average pass-through
7 rate you've calculated, is an input into that
8 service fee rate model?

9 A. For the two-sided market model, the
10 -- in the app distribution --

11 Q. Yes.

12 A. -- the pass-through rate is input into
13 determining how the optimal take rate in the
14 subsidy model, the subsidy gets chosen, that's
15 correct.

16 Q. Right. And is that also true for the
17 combined model?

18 A. That's true for the combined model as
19 well.

20 Q. And so if the pass-through rate, then --
21 again, you're not going to agree with this. But
22 if the pass-through rate were zero, okay, that
23 your model for the but-for service fee rate would
24 yield the same rate as in the actual world?

25 A. I don't know if I've gone in and put

1 Q. But it's not determinative?

2 A. I don't think it's determinative. I
3 just think it's helpful and I think that it was
4 worth pointing out, and I gave it about as much
5 attention as it deserves.

6 Q. So I want to just make sure we're clear.
7 We talked a lot about this formula in Paragraph
8 224 regarding the profit-maximizing price. This
9 is Page 104 of your report.

10 A. Yes. You like this formula a lot.

11 Q. I just want to be clear. Have you used
12 that to -- used that formula to calculate any
13 pass-through rates in this case?

14 A. No, that was not the formula that I
15 used.

16 Q. Okay. Now, Google Play has different
17 storefronts for different countries?

18 A. That's fair.

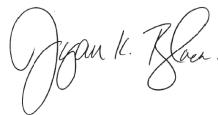
19 Q. And now as an economist, why do you
20 think Google offers different storefronts for
21 different countries?

22 A. Well, Google must think that the
23 differences in the audience is sufficiently
24 important so as to warrant the design of a
25 different storefront. You know, it's expensive

C E R T I F I C A T E

I do hereby certify that I am a Notary Public in good standing, that the aforesaid testimony was taken before me, pursuant to notice, at the time and place indicated; that said deponent was by me duly sworn to tell the truth, the whole truth, and nothing but the truth; that the testimony of said deponent was correctly recorded in machine shorthand by me and thereafter transcribed under my supervision with computer-aided transcription; that the deposition is a true and correct record of the testimony given by the witness; and that I am neither of counsel nor kin to any party in said action, nor interested in the outcome thereof.

WITNESS my hand and official seal this 13th day of May, 2022.



Notary Public

1 GOOGLE PLAY STORE ANTITRUST LITIGATION

2 5/12/2022 - HAL SINGER, PH.D.

3 ACKNOWLEDGEMENT OF DEPONENT

4 I, HAL SINGER, PH.D., do hereby declare
5 that I have read the foregoing transcript, I
6 have made any corrections, additions, or
7 changes I deemed necessary as noted on the
8 Errata to be appended hereto, and that the same
9 is a true, correct and complete transcript of
10 the testimony given by me.

11
12 _____
13 HAL SINGER, PH.D.

Date

14 *If notary is required

15
16 SUBSCRIBED AND SWORN TO BEFORE ME THIS

17 _____ DAY OF _____, 20____.

18
19
20 _____
21 NOTARY PUBLIC

REDACTED VERSION

Exhibit A55 to C. Cramer Declaration

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**UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION**

**IN RE GOOGLE PLAY CONSUMER
ANTITRUST LITIGATION**

RELATED ACTIONS:

Epic Games Inc. v. Google LLC et al.,
Case No. 3:20-cv-05671-JD

*In re Google Play Developer Antitrust
Litigation*, Case No. 3:20-cv-05792-JD

State of Utah, et al., v. Google LLC, et al.,
Case No. 3:21-cv-05227-JD

*Match Group, LLC, et al. v. Google LLC, et
al.*, Case No. 3:22-cv-02746-JD

No. 3:20-CV-05761-JD

**CONSUMER PLAINTIFFS'
OPPOSITION TO DEFENDANTS'
MOTION TO EXCLUDE
TESTIMONY OF DR. HAL J.
SINGER ON CLASS
CERTIFICATION**

Hearing Date: August 4, 2022
Hearing Time: 10:00 a.m.
Courtroom: Courtroom 11, 19th Floor
Judge: The Honorable James Donato

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INTRODUCTION

Dr. Singer's expert report demonstrates through common evidence and well-accepted economic and econometric modeling that Google's anticompetitive behavior harmed tens of millions of consumers nationwide. Dr. Singer's report relies on two models that independently demonstrate common impact on these consumers: (a) one models the overcharge in fees (or "take rate") that Google has charged developers, and the consumer harm from the overcharge that developers have passed on to consumers; and (b) a separate model independently demonstrates consumer harm through increased subsidies Google would offer directly to consumers in a competitive market. Google's motion focuses almost entirely on the pass-through portion of the first model. Google's criticisms of Dr. Singer's pass-through model are without merit and do not warrant exclusion. Google addresses the direct consumer-subsidy model—which provides an independent basis for class certification—only briefly at the end of its motion. Those criticisms are also without merit. Both of Dr. Singer's analyses are reliable and support class certification.

In support of its motion, Google repeatedly mischaracterizes the record, case law, and Dr. Singer's words when it argues that the pass-through model is not generally accepted. Dr. Singer's pass-through model isn't novel and doesn't ignore marginal costs. The model is regularly used by antitrust economists to study consumer price impacts resulting from a change in costs—indeed, it accounts for the change in marginal costs as one of its variables. In addition, Dr. Singer confirmed that the model applies to this case by applying standard econometric techniques—uncontested by Google or its experts—to Google's own data. Unable to show that the well-established model used by Dr. Singer is unreliable, Google makes a series of misplaced arguments about the reliability of facts and assumptions made by Dr. Singer. But Dr. Singer's analysis is reliable, and Google's arguments are, at best, matters for cross examination, not exclusion. The Court should deny Google's blunderbuss motion challenging Dr. Singer's report.

BACKGROUND

Dr. Singer authored a comprehensive expert report and reply report in support of class certification, marshalling economic evidence of Google's anticompetitive conduct and its impact on consumers. Ex. 1 (Singer Rpt). Google focuses solely on Dr. Singer's analysis of antitrust

1 impact and does not challenge his qualifications or move to exclude his other opinions. Dkt. 282
 2 (hereinafter “Mot.”). To prove antitrust impact on a class-wide basis, Dr. Singer models two ways
 3 in which all (or nearly all) proposed class members would have benefitted had Google not under-
 4 taken its anticompetitive campaign to monopolize the relevant markets. Both analyses are reliable.

5 In his first model, Dr. Singer demonstrates common impact in a but-for world characterized
 6 by lower take rates for developers. Google does not challenge the methodology Dr. Singer uses to
 7 calculate Google’s lower competitive take rates in a but-for world except to the extent those models
 8 rely on his pass-through model for inputs. Mot. at Part II.

9 Dr. Singer then calculates how the resulting *change* in developer marginal costs in the but-
 10 for world would impact the price of apps. Ex. 1 (Singer Rpt.) ¶¶ 222-44. Google’s take rate—a toll
 11 that all developers pay for every sale—is a marginal cost for developers. *Id.* ¶¶ 224-25. Standard
 12 economics shows that if a firm bears higher marginal costs, it will pass on those costs to consumers
 13 by charging more. *Id.* ¶ 223; *see also* Ex. 4, N. GREGORY MANKIW, PRINCIPLES OF MICROECONOM-
 14 ICS 273, 285 (Cengage Learning 8th ed. 2018). In a competitive world, the take rate would have
 15 been lower, and developers would have charged less. Instead, the cost of Google’s supra-compet-
 16 itive take rate was passed along to consumers as higher prices.

17 To calculate the precise amount of pass-through, it is necessary to know the demand curve
 18 faced by developers. Ex. 1 (Singer Rpt.) ¶ 223. Accordingly, Dr. Singer ran regressions—which,
 19 again, Google does not challenge—to determine that a logit demand system accurately reflects the
 20 demand curve Android developers in each of the app categories used by Google Play face. Ex. 1
 21 (Singer Rpt.) ¶¶ 236-38. Armed with this knowledge, Dr. Singer used the standard formula for
 22 calculating the profit-maximizing pass-through rate for a developer facing a logit demand curve.
 23 Ex. 1 (Singer Rpt.) ¶¶ 239-40. Google derides this formula as overly simplistic and suggests it is
 24 Dr. Singer’s invention, Mot. at 4,¹ but the formula is derived from the logit demand model in peer-
 25 reviewed literature—as Google’s own expert admits. Ex. 1 (Singer Rpt.) ¶ 239; Ex. 5 (Burtis Dep.)
 26 187:3-189:13 (discussing Ex. 6, Nathan Miller, Marc Remer, & Gloria Sheu, *Using cost pass-*

27
 28 ¹ Google twice claims that Dr. Singer proffered a “‘deceptively straightforward’ model.” Mot. at
 2, 9. Dr. Singer actually said that Google’s expert ignored “the calculations that work in the back-
 ground to produce a deceptively straightforward result.” Ex. 2 (Singer Reply) ¶ 68.

through to calibrate demand, 118 ECONOMICS LETTERS 451 (2013) (PX937)). Applying that formula, Dr. Singer calculates pass-through for each of the 35 app categories used, and optimized by, Google in operating its business. Ex. 1 (Singer Rpt.) Table 8.²

In his second model, Dr. Singer demonstrates common impact through increased consumer subsidies Google would have provided to consumers but for its unlawful conduct. Ex. 1 (Singer Rpt.) ¶¶ 245-56. Google does not argue that Dr. Singer’s model should be excluded because it is not generally accepted in the field, or that there are flaws with his calculation showing an increase in consumer subsidies from [REDACTED] per transaction to \$0.77 per transaction. Mot. at 14-15. Instead, it argues that not all consumers value rewards in the same way—an argument that could be made for any consumer benefit, including even money.

ARGUMENT

I. Dr. Singer’s Direct Consumer Subsidy Analysis Is Reliable and Supports Class Certification Even Absent His Pass-Through Analysis

Dr. Singer’s analysis of consumer impact through increased consumer subsidies via the Play Points program is a reliable methodology for calculating class-wide antitrust impact without the need to consider pass-through. Ex. 1 (Singer Rpt.) ¶¶ 245-56. Google does not take issue with the modeling that Dr. Singer performed, but rather argues that Dr. Singer’s opinion is unreliable solely because he did not model the percentage of consumers who would have signed up for and used Play Points in the but-for world. Mot. at 14-15. Both of Google’s arguments miss the point.

First, Google’s argument that Dr. Singer must show every user would sign up for Play Points in the but-for world is a factual dispute for cross-examination recast as a methodological failing. Google argues that the [REDACTED] participation rates from the opt-in model Google currently uses mean that Dr. Singer must model such participation in the but-for world. Mot. at 15. But as Dr. Singer explained, the Play Points subsidy “is effectively [REDACTED],” and it is unsurprising that consumers do not sign up for an average of “[REDACTED] back.” Ex. 3 (Singer Dep.) at 293:21-294:9; 298:4-21. By contrast, standard economic principles suggest participation would be a non-issue in the but-for world. Play Points is already available to all consumers, with no minimum

² Google argues the model produces “very strange results” because prices can fluctuate from week-to-week or month-to-month but fails to note that only occurs if the model is applied over an arbitrarily short period, an error only Google’s expert committed. Ex. 3 (Singer Dep.) at 131:23-134:9.

1 expenditure to join. Ex. 7 (Burtis Rpt.) ¶ 353. Google could automatically enroll users to a more
 2 fulsome program, just as credit card companies and other rewards programs already do. Ex. 2
 3 (Singer Reply) ¶ 98. Even if Google maintained an opt-in model, an 8.7 percent discount, [REDACTED]
 4 times the current discount, would drive near universal participation. *Id.*; Ex. 3 (Singer Dep.) at
 5 297:8-298:12.

6 Google has not shown why Dr. Singer must account for current low participation rates—
 7 an artifact of Google’s exclusion of competition that would have spurred it to compete for con-
 8 sumers—through separate economic modeling. *See In re Mushroom Direct Purchaser Antitrust*
 9 *Litig.*, No. 06-0620, 2015 WL 5767415, at *6 (E.D. Pa. July 29, 2015) (“I am only to consider the
 10 reliability of the expert’s method, which may properly include making assumptions so long as
 11 those assumptions are sufficiently grounded in available facts.”) (internal quotation marks omit-
 12 ted). And courts have already rejected Google’s premise that an expert must perform some sort of
 13 a study to determine how each separate consumer would value the same benefits that would result
 14 from competition. *In re Optical Disk Drive Antitrust Litig.*, No. 3:10-md-2143, 2016 WL 467444,
 15 at *9 (N.D. Cal., Feb. 8, 2016) (“Defendants’ focus on the subjective desires of individual con-
 16 sumers is misplaced, and is not supported by legal precedent requiring any such approach.”).

17 **Second**, Dr. Singer need not model redemption rates of Play Points to show antitrust im-
 18 pact. Even unredeemed points have “intrinsic option value,” in that they still may be redeemed in
 19 the future, just as gift cards or cash may be spent in the future. Ex. 2 (Singer Reply) ¶ 99; *see, e.g.,*
 20 *In re Online DVD-Rental Antitrust Litig.*, 779 F.3d 934, 952 (9th Cir. 2015) (acknowledging, in
 21 context of class settlement of antitrust claims, the intrinsic economic value to consumers of gift
 22 cards that provide a set amount of money to use on their choice of a large number of products).
 23 Consumers are better off with an 8.7 percent discount than without one.

24 Neither of Google’s arguments faulting Dr. Singer for failing to separately model away
 25 low consumer participation and redemption in Google’s current paltry Play Points program render
 26 his analysis unreliable. Dr. Singer reliably demonstrates the benefits of a more robust Play Points
 27 program, adopted in the face of fair competition, to all or nearly all class members, and this anal-
 28 ysis alone is reliable and can support class certification without considering pass-through.

II. Dr. Singer's Pass-Through Analysis Is Reliable

Google's scattershot challenges do not undermine the reliability of Dr. Singer's thorough work described above.

A. Dr. Singer's Use of the Logit Model to Calculate Pass-Through of a Change in Marginal Costs Is Reliable and Regularly Used in Antitrust Economics

Although Google claims Dr. Singer's model of pass-through is not "generally accepted," Mot. at 6-9, it presents no direct support. Nor can it. The logit demand system used by Dr. Singer is a generally accepted economic method, as even Dr. Burtis concedes. Ex. 7 (Burtis Rpt.) ¶ 306 (logit models are "frequently used in economics"); *see also* Ex. 5 (Burtis Dep.) 187:3-7. Economic literature confirms that the "most widely used discrete choice model is logit" and that it is "the ideal rather than a restriction." Ex. 8 (Kenneth Train, *Logit, in* DISCRETE CHOICE METHODS WITH SIMULATION 34-75), at 34, 36 (cited by Ex. 7 (Burtis Rpt.) ¶ 306 n.363). Likewise, courts have approved economists' use of logit models to estimate price impact in antitrust and unfair trade practices cases. *Allegra v. Luxottica Retail North America*, No. 17-CV-5216 (PKC) (RLM), 2022 WL 42867 at *56-57, 60 (E.D.N.Y. Jan. 5, 2022) (denying motion to exclude analysis of deceptive trade practice on consumer prices based on logit model); *V5 Technologies, LLC v. Switch, Ltd.*, Case No. 2:17-cv-02349-KJD-NJK, 2020 WL 6688732, at *2 (D. Nev. Nov. 12, 2020) (denying motion to exclude testimony in antitrust case relying on multinomial logit model); *In re Dial Complete Marketing and Sales Practices Litig.*, 320 F.R.D. 326, 330-31, 333 (D.N.H. 2017) (denying motion to exclude testimony using logit models to calculate consumer demand for product feature).

Google cannot credibly claim that formulas derived from logit demand systems are unreliable for calculating pass-through. Dr. Singer cites a peer-reviewed paper using the same standard logit model to calculate pass-through of cost savings from a merger. Ex. 2 (Singer Reply) ¶ 77 n.150 (citing Ex. 9 (Gregory Werden & Luke Froeb, *The Effects of Mergers in Differentiated Products Industries: Logit Demand and Merger Policy* 10(2) *Journal of Law, Economics, & Organization* 407, 419 (1994))). The logit model is "commonly employed in antitrust analysis of mergers involving differentiated products." Ex. 6 (Miller *et al.* (PX937)) at 452. Like in the merger context, Dr. Singer uses logit to examine how changes in costs impact consumer prices.

1 Unable to claim the logit model is junk science, Google instead derides the pass-through
 2 formula derived from the model as “bare bones.” Mot at 2.³ To make that argument, Google fo-
 3 cuses solely on the *final* step of Dr. Singer’s analysis, which calculates pass-through based on an
 4 app’s share of a category, while ignoring the complex econometric work enabling and validating
 5 that calculation. Specifically, two key analyses—both unchallenged by Google—demonstrate the
 6 economic rigor that underlies Dr. Singer’s pass-through calculation.

7 Dr. Singer first ran regressions on Google’s real-world transaction data to confirm the de-
 8 mand curve faced by developers in the Play Store conforms to the logit model. Ex. 1 (Singer Re-
 9 port) ¶ 235. To make that determination, Dr. Singer ran regressions on an app-by-app level,
 10 treating each of Google’s 35 app categories as a separate demand system. *Id.* ¶¶ 235-38 & Table
 11 7. Those regressions determined that the logit demand model accurately described how actual his-
 12 torical price changes affected actual consumer demand within app categories. *Id.* In other words,
 13 the regressions show that when prices rose for an app within a category, consumer demand shifted
 14 to other apps in that category following the pattern predicted by the logit model. *Id.*

15 Once Dr. Singer determined the logit model was the right fit to describe consumer purchas-
 16 ing behavior, he turned to peer-reviewed literature to determine the profit-maximizing pass-
 17 through rate for each developer based on that model. *Id.* ¶ 239 (citing Ex. 6 (Miller *et al.* (PX937))
 18 at 452-53). Starting from the basic proposition that firms maximize profit by setting marginal rev-
 19 enue equal to marginal cost, the article derives a formula from the logit demand system for how
 20 the profit-maximizing price *changes* as a developers’ marginal costs *change*. Ex. 2 (Singer Reply)
 21 ¶ 72. These calculations, which derived the formula Dr. Singer ultimately used, consider all rele-
 22 vant economic variables, *including* price and marginal cost to arrive at the logit pass-through for-
 23 mula. Ex. 2 (Singer Reply) ¶¶ 71-72. That the final formula derived from this process is simple
 24 does not mean the underlying economics are simple, any more than the simplicity of $E=MC^2$ sug-
 25 gests that the underlying physics are invalid due to the simplicity of the final formula.

26 ³ Regardless, simplicity is no basis for exclusion. *Victorino v. FCA US LLC*, No. 16cv1617-
 27 GPC(JLB), 2018 WL 2767300, at *2 (S.D. Cal. June 7, 2018) (rejecting challenge to class expert
 28 because “[w]hile the mathematical formula ... is a simple formula, it was created after careful
 review of the facts of the case, the theories alleged and consideration of different variables.”).

B. Google’s Other Arguments Against the Acceptance of the Model Are Misplaced

The majority of Google’s arguments under the heading that “Dr. Singer’s Pass-Through Formula Is Not Generally Accepted” do not relate to that question. Mot. at 6-9. These arguments are all misplaced and, at best, cross-examination points restyled as methodological arguments.

First, using cherry-picked deposition testimony, Google disingenuously argues that an equation cited in Dr. Singer’s report, but not directly used by Dr. Singer to calculate pass-through, is “the model ‘that’s generally accepted in economics’” for calculating pass-through. Mot. at 6-7 (emphasis added) (citing Ex. 3 (Singer Dep.) at 105:8-106:3, 107:23-108:2). Google’s motion ignores a crucial fact: that equation—which demonstrates how a firm calculates a profit-maximizing price—*cannot* by itself be used to calculate pass-through. Ex. 1 (Singer Rpt.) ¶¶ 224-25. Google omits that Dr. Singer explains why in response to the same set of questions it misleadingly quotes: “[W]hen I go to model the precise amount of pass-through, I have to make an assumption about what kind of demand the developer faces.” Ex. 3 (Singer Dep.) at 106:4-107:22; *see also id.* at 113:5-114:2. In other words, to calculate the profit-maximizing amount of pass-through, an economist *must* choose a demand model, which Dr. Singer did with the logit model. One *cannot* estimate pass-through based on a generic demand curve.⁴ Unsurprisingly, Google does not cite its own economist once in support of its argument that Dr. Singer should have used the equation in ¶ 224 to calculate pass-through. Mot. 6-9.

Second, Google repeatedly distorts the role marginal costs play in Dr. Singer’s analysis. Dr. Singer does not ignore marginal costs. The logit pass-through formula considers marginal costs by measuring the *change* in developers’ marginal costs. Ex. 2 (Singer Reply) ¶ 72 (citing Ex. 6 (Miller *et al.* (PX937)) at 452, 453). While the simplified pricing equation in ¶ 224 of the Singer Report includes the level of marginal cost, application of the logit demand model causes the absolute level of marginal costs to drop out of the equation, meaning the pass-through calculation depends solely on the *change* in marginal costs. Ex. 2 (Singer Reply) ¶ 71; Ex. 3 (Singer Dep.) at

⁴ But even if the equation Google’s motion argues should have been used could have model pass-through, the “choice of one particular data analysis method over another goes to the weight of his opinion, not its admissibility.” *DZ Reserve v. Meta Platforms, Inc.*, Case No. 3:18-cv-04978-JD, 2022 WL 912890 at *8 (N.D. Cal. Mar. 29, 2022).

1 113:5-115:13. This makes sense because a pass-through rate is, by definition, the *change* in price
 2 resulting from a change in cost. Ex. 1 (Singer Rpt.) ¶ 239. As noted above, Google has not chal-
 3 lenged Dr. Singer’s choice of the logit model as unreliable, nor could it.⁵

4 Next, Google places undue significance on the distinction between per-unit costs (costs
 5 that are the same regardless of price) and *ad valorem* costs (expressed as a percentage of price) but
 6 can point to no basis in economics for that alleged significance. Google falsely claims that Dr.
 7 Singer’s model is drawn from an article that “expressly states” its formulas apply to per-unit costs,
 8 not *ad valorem* costs. The article says no such thing. Ex. 6 (Miller *et al.* (PX937)) (presenting
 9 “[g]eneral model of cost pass-through” and, while applying it to a “per-unit tax,” presenting no
 10 limitation to per-unit costs).

11 The distinction between *ad valorem* and per-unit costs theoretically matters only if a short-
 12 term profit maximizing firm faces *zero* marginal costs aside from the changing take rate. Ex. 2
 13 (Singer Reply) ¶ 31. In fact, this is Google’s only marginal cost argument with *any* support from
 14 its economist. Mot. at 6-9. But Google’s own expert reports and economic literature show devel-
 15 opers face other marginal costs like sales taxes, customer support, and processing costs of user
 16 information. Ex. 7 (Burtis Rpt.) ¶¶ 144-46; Ex. 10 (Anindya Ghose & Sang Pil Han, *Estimating*
 17 *Demand for Mobile Applications in the New Economy*, 60(6) MANAGEMENT SCIENCE 1470, 1474
 18 (2013); Ex. 2 (Singer Reply) ¶¶ 21-25. Google has identified zero evidence that any developer
 19 actually faces zero marginal costs, and its expert is only willing to say that *if* developers have zero
 20 marginal costs, then a take-rate change is “less likely to lead to a change in the retail price of the
 21 app.” Ex. 7 (Burtis Rpt.) ¶¶ 142-43; *see also* Ex. 3 (Singer Dep.) at 97:24-98:19 (“replication costs”
 22 mentioned in Mot. Ex. 5 are “not the same” as marginal costs). To the contrary, analysis of
 23 Google’s data shows that taxes, another *ad valorem* cost, are typically passed on in full, incon-
 24 sistent with Google’s zero-marginal cost argument. Ex. 2 (Singer Reply) ¶¶ 23 & n.51; 244.

25
 26 ⁵ Google selectively quotes deposition testimony to suggest that Dr. Singer “went with” the logit
 27 model solely to evade calculating marginal costs, Mot. at 8. Dr. Singer’s full answer notes it was
 28 one reason “among myriad other reasons” and was “not the only reason or the primary reason why
 I chose logit.” Ex. 3 (Singer Dep.) at 195:20-196:24. Nor could it have been the reason. *All* of the
 demand models in the article cited by Dr. Singer find that the pass-through rate depends on the
change, and not the *level*, of marginal cost. Ex. 6 (Miller *et al.* (PX937)).

1 **Third**, Google’s invocation of *Illinois Brick* is a red herring and gets it nowhere. *Illinois*
 2 *Brick* does not bar Dr. Singer’s analysis here, because the Supreme Court has held that app store
 3 consumers are direct purchasers who may recover under the federal antitrust laws. *Apple v. Pepper*,
 4 139 S. Ct. 1514 (2019). As direct purchasers, consumers are “entitled to the *full amount* of the
 5 unlawful overcharge,” because “[t]he overcharge has not been passed on by anyone to anyone.”
 6 *Id.* at 1525 (2019) (emphasis in original). It is Google’s burden, not Plaintiffs’, to demonstrate that
 7 some portion of the overcharge would not affect consumer app prices. *Id.* at 1523. Nor did *Illinois*
 8 *Brick*—as Google suggests—reject the proposition that overcharges are an equivalent to an excise
 9 tax. Mot. at 9. To the contrary, it explained that “an overcharge *can* be calculated using the eco-
 10 nomic theorems for the incidence of an excise tax.” *Illinois Brick Co. v. Illinois*, 431 U.S. 720, 741
 11 n.25 (1977) (emphasis added).

12 **Fourth**, Google suggests the model fails to account for developers who would invest in
 13 their product with savings from a lower take rate. Mot. at 8-9. That is misdirection. Dr. Singer’s
 14 models are agnostic to how developers choose to use the portion of savings that are not passed
 15 through to consumers. Ex. 1 (Singer Rpt). ¶ 266. The logit model predicts pass-through rates rang-
 16 ing from 25% to 96% in each app category. Ex. 1 (Singer Rpt.) at Tables 13 & 14. Developers
 17 could reinvest some or all the remaining 4% to 75% of savings, or pocket it as profit—Dr. Singer’s
 18 modeling is not undermined by either outcome. And, in any event, Google’s argument that an
 19 economist must model whether increased costs are passed along in the form of higher prices, or
 20 instead result in decreased investment in product development, would effectively exclude the ex-
 21 pert testimony in myriad antitrust cases where economists have shown consumer impact in the
 22 form of higher prices.

23 **C. Dr. Singer’s Pass-Through Model Is Based on Reliable Data**

24 Most of Google’s challenges to Dr. Singer’s pass-through model concern facts Google
 25 claims he failed to consider and assumptions Google claims he made. But those are not a basis for
 26 exclusion. As this Court recognizes, “[t]he appropriate concerns at this stage are not about the
 27 quality of the data [the expert] used or whether he included all potential variables in his model...
 28 Those observations may be grist for a good cross-examination at trial, but they do not play a

material role” in *Daubert. In re Capacitors Antitrust Litig. (No. III)*, No. 14-CV-03264-JD, 2018 WL 5980139, at *6 (N.D. Cal. Nov. 14, 2018); *Hemmings v. Tidyman’s Inc.*, 285 F.3d 1174, 1188 (9th Cir. 2002) (“[I]n most cases, objections to the inadequacies of a study are more appropriately considered an objection going to the weight of the evidence rather than its admissibility.”).

1. Dr. Singer Considered Real-World Data

Google wrongly contends Dr. Singer ignores real-world data. In fact, Dr. Singer considered and used the available data to the extent it was reliable—and he considered and rejected unreliable data and assumptions (as economists regularly do).

To begin, Dr. Singer did not use his “typical” approach of “regressing retail price changes on wholesale price changes,” Mot. at 9 (citing Ex. 3 (Singer Dep.) at 134:25-135:6), because wholesale pricing data simply does not exist for Google Play. Ex. 3 (Singer Dep.) at 136:13-20.

Google also complains that Dr. Singer failed to credit Google’s expert’s and the developer class certification expert’s analyses of price reductions following limited take rate reductions in 2018 and 2021. As explained in Dr. Singer’s reply report, methodological failures infect Dr. Burtis’s analysis of the 2018 and 2021 changes. For example, Dr. Burtis’s analysis of the 2018 take rate change—which applied only to second-year subscriptions—ignores that Google Play provides no mechanism for a developer to change second-year subscription prices. Ex. 2 (Singer Reply) ¶ 122. Dr. Burtis’s analyses also are infected by numerous other flaws, including failure to measure over a sufficiently long-time horizon, failure to include a control group, and reviewing changes over artificially small product-groups rather than by app or developer. *Id.* ¶¶ 102-33. At best, the analyses demonstrate price stickiness, which would benefit the class in the but-for world where a competitive take rate would have been set at the outset. *Id.* ¶ 115. More fundamentally, Google’s average overall take rate remained near constant throughout the class period, despite Google’s minor changes in 2018 and 2021, providing almost no basis to examine more significant changes in take rate that would result from full competition. Ex. 3 (Singer Dep.) 138:16-141:12.

Contrary to Google’s suggestions, Dr. Singer tested his model on significant actual data, running regressions on Google’s transaction data to determine that the logit model was a good fit. Ex. 1 (Singer Rpt.) ¶¶ 237-38. He analyzed developers’ experience with sales tax to confirm that

1 developers pass through costs to consumers. *Id.* ¶ 244. And he analyzed pass-through from the
 2 limited number of major developers who can effectively offer lower prices on their websites in
 3 spite of Google’s anti-steering restraints. *Id.* ¶¶ 242-43 & Table 9. As evidenced by Dr. Burtis’s
 4 failures, broader real-world experiments are not possible because of Google’s continuous anticom-
 5 petitive conduct. Ex. 2 (Singer Reply) ¶¶ 112-15. A but-for world characterized by steering, per-
 6 manent widespread lower take rates, and other pro-competitive benefits would facilitate pass-
 7 through, resulting in a competitive price for the consumer. *Id.*

8 Finally, Google’s claim that Dr. Singer relied on no developer testimony is, once again,
 9 false. Dr. Singer relied on trial testimony in *Epic v. Apple* from Match.com’s Adrian Ong confirm-
 10 ing that increased costs from Apple’s take rate led to higher prices. Ex. 1 (Singer Rpt.) ¶ 227 &
 11 n.501. And testimony from Dan Scalise of Rescue Pets, a developer class representative, confirmed
 12 a fatal flaw in Dr. Burtis’s and the developer class expert’s analysis of [REDACTED]

13 [REDACTED]
 14 [REDACTED] Ex. 2 (Singer Re-
 15 ply) ¶ 122 & n.248 (citing Ex. 11 (Scalise Dep.) at 269:9-21). Google fails to note this testimony.

16 **2. Focal-Point Pricing Does Not Undermine Dr. Singer’s Model**

17 Google incorrectly claims that focal point pricing undermines Dr. Singer’s models of pric-
 18 ing in the but-for world. Unlike in the case cited by Google, there is no “overwhelming evidence”
 19 in this case suggesting that “developers would choose to price their apps at focal points ending in
 20 99 cents.” *In re Apple iPhone Antitrust Litig.*, 2022 WL 1284104, at *8 (N.D. Cal. Mar. 29, 2022).
 21 To the contrary, Dr. Singer provides significant economic analysis suggesting that developers
 22 would break from focal point pricing in the but-for world. Even now, developers are already will-
 23 ing to depart from focal point pricing. More than 20% of the top paid apps in the Play Store have
 24 prices that do not end in “.99.” Ex. 2 (Singer Reply) ¶ 26. And until recently, Google imposed a
 25 minimum price of \$0.99, which would be absent in the but-for world. Google recently lifted that
 26 restraint because developers *asked* for flexibility from having to price at a minimum of \$0.99,
 27 showing that developers do not view a price ending in \$0.99 as sacrosanct, or even desirable. Ex.
 28 2 (Singer Reply) ¶ 29, & n.58; Ex. 12 (GOOG-PLAY-000355570.R) at -597.R.

Further, in the but-for world, the opportunity to steer consumers to cheaper platforms for in-app purchases would result in departure from focal point pricing to incentivize consumers to switch. Ex. 2 (Singer Reply) ¶ 28; Ex. 3 (Singer Dep.) at 200:7-202:7. Although still constrained by Google’s anticompetitive conduct, major developers have departed from focal point pricing to take advantage of their severely limited opportunity to steer with reduced prices. Ex. 1 (Singer Rpt.) at Table 9. Finally, to the extent developers prefer to maintain “supermarket-style” pricing in the but-for world, Dr. Singer’s models allow for them to retain prices ending in “9,” while still passing savings on to consumers, as is observed in the actual world. Ex. 2 (Singer Reply) ¶ 30 & Figure 3. His impact model produces aggregate overcharges within a category; there are myriad pricing combinations—including those ending in “9”—that add up to his aggregate overcharge.

Dr. Singer considered evidence of focal point pricing in his report and reliably determined that his models were sufficient to calculate damages. Ex. 3 (Singer Dep.) at 203:6-206:8.

3. Dr. Singer Properly Used Google’s App Categories

Record and economic evidence support Dr. Singer’s use of Google’s app categories. Contrary to Google’s claim, the logit model does not require that all apps within a category are perfect substitutes. Ex. 3 (Singer Dep.) 158:6-160:1 (noting “it’s not necessary” to determine which apps are substitutes “to get the implied pass-through rate.”). While it “is generally the case” that goods in a logit demand system are substitutes, this does not imply that all goods are interchangeable. *Id.* Economic literature confirms that logit allows for extensive product differentiation, while recognizing that consumers are likelier to shift to goods seen as near-substitutes. Ex. 2 (Singer Reply) ¶ 77; Ex. 13 (Simon Anderson & Andre de Palma, *The Logit as a Model of Product Differentiation* 44 OXFORD ECONOMIC PAPERS 51-67 (1992)) at 53 (noting “there are many characteristics of products which consumers value differently”); Ex. 8 (Train) at 47 (describing “proportionate shifting”).

Record evidence shows that Google’s app categories are economically reasonable groupings of consumer preferences. Ex. 2 (Singer Reply) ¶¶ 75-77. Google publicly tells developers that “Categories and tags help users to search for and discover the most relevant apps in the Play Store,” Ex. 2 (Singer Reply) ¶ 75, and uses those same categories for its own internal analyses of consumer spend. *E.g.*, Ex. 14 (GOOG-PLAY-000579868.R) at -870.R; Ex. 2 (Singer Reply) ¶ 75 (compiling

other Google analyses). Developers are incentivized to categorize their apps with the apps of their competitors to lead consumers to their apps; it would make no sense for a developer to place its app in a category of apps that do not relate to it. Google itself recognizes that “developers engage more with category-specific content.” *Id.* ¶ 76; Ex. 15 (GOOG-PLAY-000303918.R) at -926.R.

Dr. Singer’s regressions—which confirmed the logit model fits the data—are strong independent evidence that the app categories used by Google in its ordinary course of business appropriately defined the scope of substitution possibilities for app users. The logit model would only fit the data if there were some substitution between the apps in the chosen categories—and here, Dr. Singer’s regressions, which were calibrated to the app categories, determined that the “logit demand model explains the vast majority (more than 85 percent) of the variation” in the demand for Apps and In-App Content in the real world. Ex. 2 (Singer Reply) ¶ 70; Ex. 1 (Singer Rpt.) ¶ 238. In other words, as an app developer’s price increased, its share within the category declined following the logit model’s predicted demand curve.

The record and Dr. Singer’s confirmatory regressions establish that any assumptions he made in using Google’s app categories as an input in his model were reliable and appropriate. To the extent Google thinks otherwise, that can be a cross issue. *See Blood Reagents Antitrust Litig.*, No. 09-2081, 2015 WL 6123211, at *14 (E.D. Pa. Oct. 19, 2015) (admitting expert testimony reliant upon assumption about business model with “some support for those assumptions in the record” because any weaknesses “bear on the weight of the evidence rather than admissibility”).

D. Dr. Singer Properly Disclosed the Basis for his Pass-Through Analysis

Dr. Singer has properly disclosed the basis for his pass-through analysis. Google’s motion faults Dr. Singer solely for not disclosing calculations testing two alternative demand curves to the logit model. Mot. at 13. But Google ignores that the expert stipulation and order in this case requires disclosure only of data “*relied upon*” by the expert witness as a basis for the expert witness’s opinion(s).” Dkt. 55 ¶¶ 4, 7 (emphasis added); *contrast with* Mot. at 13 (quoting “considered by an expert” standard); *see also Chinitz v. Intero Real Estate Servs.*, No. 18-cv-05623-BLF, 2020 WL 7391299, at *4 (N.D. Cal. July 22, 2020) (noting that the default Rule 26(a) “considered” standard is significantly broader than a “relied upon” standard). Dr. Singer clearly testified that

1 while he tested other demand curves, he did not describe them in his report “[b]ecause I ultimately
2 didn’t rely on them.” Ex. 3 (Singer Dep.) 152:22-153:12. And, in any event, Google’s experts have
3 all the data they need to run alternative regressions themselves and doing so would have led them
4 to the same conclusion—that the logit model best fits the data. Ex. 3 (Singer Dep.) 174:17-25.⁶

5 **III. Dr. Singer’s Formula For Calculating Google’s Competitive Take Rate Is Reliable**

6 Dr. Singer’s calculation of Google’s competitive take rates is reliable. Google raises only
7 two criticisms of Dr. Singer’s modeling—that it relies on his pass-through calculations and that it
8 yields allegedly “absurd results.” Mot. at 13-14. Neither is availing.

9 **First**, as explained above, *supra* Part II, Dr. Singer’s pass-through calculations are reliable.
10 And even assuming Dr. Singer’s pass-through calculations were flawed (which they are not), pass-
11 through is just one of many inputs to the econometric models Dr. Singer used to determine com-
12 petitive take rates. Ex. 1 (Singer Rpt.) Tables 3 & 5. Criticisms with one variable are not grounds
13 for exclusion of an expert’s testimony. *See Victorino v. FCA US LLC*, 2018 WL 2767300, at *3
14 (“Under Rule 702 and Daubert, the proper analysis is not whether some of the inputs can be ques-
15 tioned...”); *Bazemore v. Friday*, 478 U.S. 385, 400, (1986) (“Normally, failure to include variables
16 will affect the analysis’ probativeness, not its admissibility.”).

17 **Second**, Dr. Singer’s model does not predict service fees too low to cover Google’s mar-
18 ginal costs, as Google claims. Dr. Singer “conservatively estimated” Google’s marginal costs at
19 █████ but estimated that the actual figure could range from █ to █████. Ex. 1 (Singer Rpt.) ¶¶ 87
20 & n. 183, 192 n.388, 212. Neither the 10% fee for Entertainment apps, nor the 9.7% fee for Music
21 and Audio apps falls below the range of estimates of Google’s marginal costs. *Id.* at Table 14.
22 Moreover, that Google’s rates in 2 of 35 categories fall close to Google’s marginal costs does not
23 mean Google could not “anticipate any profit in the foreseeable future.” Mot. at 14 (quoting *Apple*
24 *iPhone Antitrust Litig.*, 2022 WL 1284104, at *5). Google does not (and cannot) contend that the

25
26
27 ⁶ Google’s belated invocation of Rule 26 alone shows lack of prejudice. *W.L. Gore & Assocs., Inc.*
28 *v. C.R. Bard, Inc.*, No. CV 11-515-LPS-CJB, 2015 WL 12806484, at *4-5 (D. Del. Sept. 25, 2015)
(noting that delayed Rule 26 motion “embed[ed] ... in its *Daubert* motion” “seriously undermines
its contention that there was a lack of disclosure here that has caused it prejudice.”)

1 Play business would be unprofitable under Dr. Singer’s model—and the fact that Google may
2 make more money distributing some app categories than others is unsurprising.⁷

3 **IV. Dr. Singer’s Use of Averages in Calculating Consumer Impact Is Reliable**

4 Finally, Google argues that Dr. Singer’s consumer impact calculations are unreliable be-
5 cause he employs average take rates and pass-through rates. Mot. at 14. But far from obscuring
6 differences between class members or leading to incorrect conclusions, an average take rate across
7 developers accurately reflects market conditions. In the actual world, Google has consistently used
8 uniform and formulaic take rate structures. Ex. 2 (Singer Reply) ¶¶ 7-10. There is no reason to
9 expect that Google would radically depart from this practice and individually negotiate take rates
10 for thousands of developers, developer-by-developer, in the but-for world. *Id.* ¶ 10.

11 With respect to the pass-through rates, Dr. Singer does not assume “that all apps in the
12 same category would reduce prices by the same proportion,” Mot. at 14. Dr. Singer did in fact
13 calculate the pass-through rate on the *individual* app level, based on each app’s share of the cate-
14 gory, before presenting the average levels in summary. Ex. 3 (Singer Dep.) 130:22-25. Using the
15 same methodology, he could easily calculate pass-through at the app level if necessary for his final
16 damages calculation. *Id.* at 393:11-394:11. But Google has not suggested why an average is unre-
17 liable in this context, and there is nothing inherently wrong with the use of averages in calculations
18 in a class action or any other case. *See Tyson Foods, Inc. v. Bouaphakeo*, 577 U.S. 442, 454-55
19 (2016) (admissibility of representative or statistical evidence turns on “degree to which the evi-
20 dence is reliable”); *Olean Wholesale Grocery Coop., Inc. v. Bumble Bee Foods LLC*, 31 F.4th 651,
21 665, 677 (9th Cir. 2022) (“Plaintiffs frequently offer expert evidence, including statistical evidence
22 or class-wide averages, to prove that they meet the prerequisites of Rule 23(b)(3).”); *Optical Disk*
23 *Drive Antitrust Litig.*, 2016 WL 467444, at *10 (finding that “the appropriate degree to which data
24 should be aggregated to derive reliable results fall on the ‘merits’ side of the line”).

25 **CONCLUSION**

26 The Court should deny Google’s motion to exclude the opinions of Dr. Singer.

27
28 ⁷ Indeed, Google has already shown a willingness to offer even lower take rates for apps in these
categories. Ex. 7 (Burtis Rpt.) ¶ 64 n.45 (LRAP++ take rate of [REDACTED]); Ex. 16 (GOOG-PLAY-
010736506) (offer to [REDACTED] of [REDACTED] effective take rate).

Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing was served on June 23, 2022 upon all counsel of record via the Court's electronic notification system.

/s/ Karma M. Giulianelli

REDACTED VERSION

Exhibit A56 to C. Cramer Declaration

EXHIBIT 3

FILED UNDER SEAL

1 UNITED STATES DISTRICT COURT
2 NORTHERN DISTRICT OF CALIFORNIA
3 SAN FRANCISCO DIVISION

4 -----X
5 IN RE GOOGLE PLAY STORE
6 ANTITRUST LITIGATION
7 Case No. 3:21-md-02981-JD

8 THIS DOCUMENT RELATES TO:
9 Epic Games Inc. v. Google LLC, et al.,
10 Case No. 3:20-cv-05671-JD

11 In Re Google Play Consumer
12 Antitrust Litigation
13 Case No. 3:20-cv-05671-JD

14 In Re Google Play Developer
15 Antitrust Litigation,
16 Case No: 3:20-cv-05792-JD

17 State of Utah, et al., v.
18 Google LLC, et al.,
19 Case No: 3:21-cv-05227-JD

20 -----X

21 VIDEOTAPE DEPOSITION
22 HAL SINGER, PH.D.
23 Thursday, May 12, 2022
24 9:07 a.m. (EST)

25 Reported by:
Ryan K. Black, RPR, CLR, Notary Public

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Thursday, May 12, 2022

Video Deposition of HAL SINGER, PH.D.,
taken at the Law Offices of Munger, Tolles &
Olson, LLP, 601 Massachusetts Avenue NW
Washington, DC, beginning at 9:07 a.m.,
before Ryan K. Black, a Registered
Professional Reporter, Certified Livenote
Reporter and Notary Public and for the
District of Columbia.

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Exhibit 334	Hal Singer Ph.D's Reply Report...	27
Exhibit 335	an article titled Digital Economics by Avi Goldfarb and Catherine Tucker.....	96
Exhibit 336	a document titled Economics Letters - Using Cost Pass-through To Calibrate Demand, by Miller, Remer and Sheu.....	117
Exhibit 337	an article titled The Antitrust Logit Model For Predicting Unilateral Competitive Effects, by Gregory J. Werden and Luke M. Froeb.....	156
Exhibit 338	a document titled Expert Report of Michelle M. Burtis, Ph.D.....	364

1 THE VIDEOGRAPHER: Good morning. We are
2 on the record at 9:07 a.m. on May 12, 2022. This
3 is the video-recorded deposition of Hal Singer
4 taken in the matter of In re: Google Play Store
5 Antitrust Litigation, filed in the United States
6 District Court, Northern District of California,
7 San Francisco Division, Case No.
8 3:21-MD-02981-JD.

9 My name is Emmanuel Pezoa, from the firm
10 Veritext Legal Solutions. The court reporter is
11 Ryan Black, from the firm Veritext Legal
12 Solutions.

13 Will the court re -- court reporter
14 please swear in the witness?

15 * * *

16 Whereupon --

17 HAL JASON SINGER, PH.D.,
18 called to testify, having been first duly sworn
19 or affirmed, was examined and testified as
20 follows:

21 * * *

22 THE REPORTER: And, Counsel, if you want
23 to state your appearances for the record, that
24 would be great.

25 MR. RAPHAEL: Sure.

1 Justin Raphael, Munger Tolles & Olson,
2 for the defendants.

3 MS. GIULIANELLI: Karma Giulianelli,
4 from Bartlit Beck, for the consumer class.

5 MS. JIANG: Yajing Jiang from Charles
6 River Associates.

7 MR. RAPHAEL: Is there anyone on the
8 line who wants to introduce themselves?

9 MS. ERNST: This is Amy Ernst. I'm here
10 with Hausfeld for the plaintiff developers.

11 THE VIDEOGRAPHER: Thank you. You may
12 proceed.

13 MR. ZEPP: Eric Zepp here, from Cravath
14 Swaine & Moore, on behalf of Epic Games.

15 MR. CAVES: I'm Kevin Caves, with Econ
16 One on behalf of the Commercial developers.

17 EXAMINATION

18 BY MR. RAPHAEL:

19 Q. All right. Dr. Singer, will you just
20 state your name for the record?

21 A. Hal Jason Singer.

22 Q. And, Dr. Singer, you've been deposed
23 many times; is that right?

24 A. Yes.

25 Q. How many times would you say you've been

1 THE WITNESS: Thanks.

2 BY MR. RAPHAEL:

3 Q. Do you see Exhibit 335, Dr. Singer?

4 A. I do.

5 Q. And what is it?

6 A. It -- it appears to be the article that
7 I cited.

8 Q. That's the "Digital Economics" article
9 by Tucker and Goldfarb?

10 A. Yes.

11 Q. And -- and could you go to Page 12 of
12 the article?

13 A. If you'd let me just -- one second. I'd
14 -- I'd like to just read the abstract quickly.

15 Q. Would you go to Page 12, please?

16 A. Hold on one second.

17 Okay. Page 12.

18 Okay.

19 Q. Do you see at -- further down, say,
20 two-thirds of the way down in the left column,
21 there's a header that says, "The replication cost
22 of digital goods is zero"?

23 A. Yes.

24 Q. So this article that you relied on in
25 your report says that "The replication costs of

1 digital goods is zero," correct?

2 A. Correct.

3 Q. Now, are you familiar with V-Bucks?

4 A. Oh. Can I put this to the side?

5 Q. For now, yes.

6 A. Yeah.

7 And I would just note for the record
8 that replication costs and marginal costs are not
9 the same.

10 Q. Well, how are they different?

11 A. Oh. What -- what Goldfarb is not taking
12 into consideration here is that to sell the extra
13 unit you have to pay a processing fee. That's a
14 marginal cost.

15 So it's true that to create the next
16 sword -- the 150th sword doesn't cost any more to
17 replicate that sword, but that doesn't mean there
18 aren't any marginal costs incurred in the
19 transaction.

20 Q. Understood.

21 All right. Could some developers have
22 negative marginal costs for in-app purchases?

23 A. It's hard to -- to fathom that.

24 Q. What if a developer generates
25 advertising revenue as the result of an in-app

1 being reflected in the prices of apps in the
2 transaction data.

3 Q. Right. And your opinion is that
4 Google's service fees, to the extent that they
5 are supercompetitive, is equivalent to an
6 increase in the developer's marginal cost.

7 A. It can be understood that way, yes.

8 Q. Right. And in your report, you've
9 modeled the proper economic way to calculate how
10 a profit-maximizing developer would set prices
11 based on marginal costs.

12 A. I have. And --

13 Q. Right.

14 A. -- and, as you know, it depends on
15 the -- the nature of the demand and the demand
16 specification that you assume, right? Each
17 demand specification you assume is going to apply
18 at different pass-through rates.

19 Q. Right. So could you go to Page 104 of
20 your report, your opening report, please?

21 A. Sure.

22 Q. And you'll see this is a continuation of
23 the Paragraph 225 from the previous page.

24 And you've got a formula there that has
25 "P minus C star divided by P equals one divided

1 by E sub D."

2 Do you see that?

3 A. Yes. That's the classic Lerner markup.

4 Q. Right. So that's -- that's the proper
5 economic model for how a profit maximizing
6 developer would set prices based on marginal
7 costs, right?

8 A. That model describes the markup over
9 marginal cost as the function of the elasticity
10 of demand faced by the developer.

11 Q. Right. And -- and this model on Page
12 104 of your opening report, that -- that's --

13 A. So --

14 Q. -- the correct economic mod -- economic
15 way to model how the change in marginal costs
16 will affect the price that the developer charges.

17 A. It's the -- it's the way to think
18 about it at -- at a very, very high level of
19 abstraction. But, as you know, to actually
20 estimate the pass-through rate here, I have to
21 make an assumption about the demands curve and --
22 and -- and the precise nature of demand that a --
23 the developer faces, right?

24 Once you --

25 Q. Understood.

1 A. -- make a -- once you make that
2 decision, you get these pass-through rules,
3 right? And the pass-through rules -- whether you
4 go linear or logit or -- or constant elasticity
5 -- are going to express pass-through as a
6 function of things that do not include the
7 marginal cost.

8 Q. Understood. But this formula on Page
9 104 of your report is the correct economic way to
10 model the relationship between the developer's
11 price and the marginal cost in general?

12 A. Well, I just want to put that caveat in
13 there. It's the -- it's the -- definitely the
14 way to think about it and why it's in my
15 preamble, right?

16 But when I go to model the precise
17 amount of pass-through, I have to make an
18 assumption about what kind of demand the
19 developer faces, right? And that -- that puts
20 me to a -- takes me to a pass-through rule that
21 isn't necessarily going to be denominated in
22 terms of costs.

23 Q. Understood. So -- but -- but this mod
24 -- this economic model you've described in Page
25 104 of your report, that's generally accepted in

1 economics.

2 A. Yes.

3 Q. Now, if you just look at the cost term
4 there, C star, and the -- the C star in that
5 formula that you have on Page 104 of your report
6 is equal to C divided by one minus T, right?

7 A. Correct.

8 Q. And -- and in that -- in that cost term
9 I just described, T is the service fee rate?

10 A. Correct.

11 Q. And C is the developer's per-unit
12 marginal cost other than the service fee?

13 A. Correct. Processing and the like, yes.
14 Any other --

15 Q. Okay.

16 A. Any other types of marginal costs.

17 Q. Okay. And so one input into the
18 generally accepted economic model of how the
19 profit-maximizing developer would set pri --
20 prices is the marginal costs other than the
21 service fee.

22 A. For short-run profit maximization, the
23 answer is, yes, that this model, at this high
24 level of ab -- of abstraction, is a function of
25 the marginal cost.

1 profit-maximization formula, that the -- the
2 pass-through rate is going to be proportional to
3 the other marginal costs. I'll give you that.

4 BY MR. RAPHAEL:

5 Q. Now, in your reports, you haven't used
6 this economic model from par -- from Paragraph
7 225 in Page 104 to actually calculate how
8 developers' prices would change if Google
9 reduced its service fees.

10 A. I disagree with that characterization,
11 because this is the generic statement of the
12 model before you specify what kind of demand the
13 developer is facing.

14 But when you begin -- when you move over
15 to the logit model, or you do it for any demand
16 specification for that matter, you're never
17 moving away from this underlying model of profit
18 maximization, right? It's always flowing from
19 the same place. There's still something that is
20 the equivalent of the Lerner Optimum Markup Rule
21 and the logit demand specification, right, as --
22 as you see in 103 and 104.

23 This is always undergirding. This is
24 like the basic building block. The logit is just
25 an example of what this would look like when you

1 give me an assumption about the nature of the
2 demand faced by the app developer.

3 Q. Okay. But if you knew -- you -- you've
4 used a logit model to estimate the nature of
5 demand, right?

6 A. Correct.

7 Q. And could that be the term "E sub D" in
8 your formula on Page 104?

9 A. Yes. It is related to -- that "E sub D"
10 is -- characterizes or captures the nature of the
11 demand. And now we're getting more specific.
12 Now we're saying, "What if they face a logit
13 demand system?"

14 Q. Right.

15 A. Uh-huh.

16 Q. And so if you knew the elasticity of
17 demand in this formula and you knew what "C star"
18 was, you could use this formula to calculate what
19 the but-for world price would be, correct?

20 A. You would have to assume -- you could
21 only use this formula, I believe, for a constant
22 elasticity demand. I -- I -- I want to -- I want
23 to go back and kind of make sure this is right,
24 but I've given you what the pass-through rate is,
25 mathematically at least, algebraically, when you

1 do a linear assumption, when you do a constant
2 elasticity assumption, and when you do a logit
3 assumption.

4 Q. Uh-huh.

5 A. Right?

6 And to answer your question, I think
7 that the -- the linear and the logit models
8 are going to allow the elasticity of demand to
9 change, whereas the constant elasticity by
10 definition is going to take that elasticity as a
11 given. And so that's the only one in which the
12 elasticity is going to hang around in your
13 pass-through model -- your pass-through rule.

14 Q. Okay. Now, Google's -- in your opinion,
15 Google's service fee's akin to a tax.

16 A. Yes.

17 Q. Okay. And if it were a tax, Google's
18 service fee would be an ad valorem tax.

19 A. Yes.

20 Q. And, again, that means that the service
21 fee is a percentage of the price.

22 A. Correct.

23 Q. Now, for your logit pass-through model
24 to actually calculate the pass-through rate in
25 this case, you relied on an article by Miller,

1 logit demand system?

2 A. Cor --

3 Q. Equation 6.

4 A. Correct.

5 Q. Yeah. And just to make sure I
6 understand what you did, you -- you then ran a
7 regression to test whether the structure of
8 demand for apps was logit.

9 A. I think that's fair, that I -- I did try
10 to assess which demand assumption best explained
11 the patterns in the data.

12 Q. Okay. Now -- and then you took the
13 formula from that Miller article -- after you ran
14 the regression to test the logit demand, you took
15 that formula and you calculated pass-through
16 rates for each category of apps in the Google
17 Play store?

18 A. Correct. It begins at the app level,
19 and it's aggregated up to the category. But,
20 yes, ultimately I wanted a -- I wanted a
21 pass-through rate for the category.

22 Q. Right. Did you calculate pass-through
23 rates for any individual app?

24 A. Yes. You have to. On your way to get
25 to the category, you have to.

1 Q. Did you calculate them for -- on a de
2 -- developer -- per-developer basis or a per-app
3 basis?

4 A. It was at the app level.

5 Q. Okay. And if you'll go to -- again,
6 back to Paragraph 239 with your pass-through rate
7 formula.

8 A. Okay.

9 Q. And you have the formula there
10 "M minus Q sub J divided by M," right?

11 A. Right.

12 Q. And "M" is the size of the market?

13 A. Correct.

14 Q. And "Q sub J" is the number of
15 transactions involving a particular app.

16 A. Correct.

17 Q. Okay. And the market here, this term
18 "M," is, essentially, the total number of
19 transactions of apps in the same category as the
20 app whose pass-through rate you're trying to
21 measure.

22 A. Correct.

23 Q. And so basically the formula to
24 calculate the pass-through rate for any app that
25 you've put forward is a hundred minus the app

1 share of all transactions in its category.

2 A. Fair.

3 Q. So just by --

4 A. Over -- careful caveat: Over the course
5 of the class period.

6 Q. Okay.

7 A. We're not going to look at it on a
8 daily basis. We're not going to look at like
9 Dr. Burtis. We're not going to look at it on a
10 monthly.

11 Q. Okay.

12 A. We're doing it over the -- over the
13 class period, over the database, over the range
14 of data.

15 Q. Okay. And why do you do it over the
16 class -- whole class period?

17 A. Because I don't think it makes sense as
18 an economic matter that a firm is going to be
19 updating its -- its prices or its pass-through
20 rates on a daily basis. I think that the
21 appropriate measure passed through. There's,
22 basically, going to be too much volatility in the
23 -- in the share, right? If you literally were to
24 do it down to the nanosecond, you'd be -- you'd
25 be getting different pass-through rates at -- at

1 different points in time.

2 I think it's much more sound, from an
3 economic perspective, to look at it over a longer
4 period of time.

5 Q. So just if you applied your model on a,
6 say, daily or monthly basis for -- if you applied
7 your pass-through model on a daily or a monthly
8 basis, you would -- it would predict changes in
9 the price that developers charge that you don't
10 actually see in the real world.

11 MS. GIULIANELLI: Objection to form.

12 THE WITNESS: No, it would imply changes
13 in pass-through rates.

14 And it's important to note that I've now
15 tested, because Dr. Burtis found a few months,
16 you know, where somebody changes or someone goes
17 to a hundred, and I've now calculated that there
18 is very little variation across all apps as you
19 toggle through time. She's not that sensitive to
20 doing it. Of course, she can cherry-pick a
21 particular example that makes it look sensitive.

22 But we actually did the estimation,
23 and it turns out that the -- the app -- on -- on
24 average, a given app's implied pass rate is very
25 close to what it is across the entire damages

1 period.

2 BY MR. RAPHAEL:

3 Q. But the pass-through formula you have
4 would predict changes in the pass-through rate
5 from week to week or month to month if the share
6 changes. Fair?

7 A. If one were so inclined to measure it on
8 -- on a monthly or nanosecond basis, yes, you
9 could get very strange results.

10 Q. Okay. Could the formula you've got
11 here, the "M minus Q sub J divided by M," could
12 that be used to calculate pass-through rates in
13 any case where you know the unit market share of
14 an intermediary alleged to have passed on an
15 overcharge?

16 A. I -- I -- I'd be reluctant to say that
17 the logit model could be applied to any case.
18 I'd want to confirm, first, as I did here, that
19 the logit model does a good job explaining the
20 relationship between prices and shares, as it
21 does here.

22 So I think you need some empirical
23 foundation before applying the logit model.
24 I think that would be a good -- good practice.

25 Q. Okay. Have you used the formula that

1 you used to calculate pass-through in this case
2 to calculate pass-through in any other case?

3 A. I do not believe I have. In other
4 cases, what I'm typically doing is regressing
5 retail price changes on wholesale price changes.

6 Q. Okay.

7 A. And that -- that's just not available
8 here.

9 Q. All right. To your knowledge, has
10 any economist used the formula you've used to
11 calculate pass-through in this case to calculate
12 pass-through in some other case?

13 A. I -- I don't -- I don't know enough -- I
14 can't follow how pass-through is calculated in
15 every antitrust case. I can tell you that the
16 logit assumption is one of the most common
17 assumptions that's used in antitrust cases there
18 is.

19 Q. But --

20 A. All right?

21 Q. But you're not aware of this formula
22 being used to calculate pass-through in another
23 case.

24 A. Oh. Pass-through? Well, the formula
25 is used to calculate price effects from, say,

1 mergers. It's one of the most common, you know,
2 formulas that are used.

3 Q. Sure. Well, --

4 A. Cert --

5 Q. -- ju -- just to be clear, the actual
6 formula that you used in this case in Paragraph
7 239, are you aware of that particular formula
8 being used for -- in any other case to calculate
9 pass-through?

10 A. I -- I would -- I haven't seen -- I'm
11 only away of what's been used in cases that I've
12 calculated pass-through, --

13 Q. Fair enough.

14 A. -- all right?

15 And in those cases, I typically have the
16 luxury of having a database that I -- that allows
17 me to relate retail prices with wholesale prices.
18 That -- that didn't happen here. That is kind of
19 my -- the standard way I -- I go about doing it.

20 Here, there was no analogous database.

21 Q. Right. So in the usual case, you look
22 at the actual pricing data to determine the
23 pass-through rate.

24 A. Well, here I actually did look at the
25 actual pricing data, right? I wanted to convince

1 myself that -- that prices -- movements in prices
2 could explain a given app's share within a
3 category. It turns out it can. It does it
4 really well. I also wanted to convince myself
5 that changes in taxes did a good job explaining
6 prices.

7 So until I could -- I used that, as you
8 know, as my instrument in the first stage of my
9 -- of my regressions. So I wanted to get my
10 hands dirty with the real data to get comfort in
11 knowing that the logit model did it -- did the
12 best job possible of explaining the variations in
13 the -- in the data that we see -- in the
14 transaction data.

15 Q. Well, sir, did you do anything in this
16 case to measure a correlation between service
17 fees and actual prices that were charged for
18 transactions by developers?

19 A. Yes. Remember, there's a Table -- and I
20 think it's Table 9 -- in my initial report that
21 looks at how app developers have charged
22 differently for their -- for their apps --

23 Q. But Table --

24 A. -- when they -- can I just finish --

25 Q. Sure.

1 A. -- my answer?

2 -- when they -- when they're able to
3 avoid Google's, or in the case of YouTube, it was
4 Apple's take rate.

5 Q. Well, Table 9's not a comprehensive
6 analysis of all developers, right?

7 A. Well, it's not comprehensive because of
8 the challenged conduct here, right? It -- the
9 -- we don't -- we don't get to see steering in --
10 in the real world because of the restraint,
11 right? But the case in part, or in large part,
12 is about challenging that restraint.

13 So it is -- it is difficult to -- to
14 take advantage or exploit natural experiments
15 given Google's conduct here.

16 Q. Right. I'm -- I'm just asking. You
17 didn't do any comprehensive analysis of any
18 relationship between service fees in the actual
19 world and developer's prices in the actual world.

20 A. The -- the closest I did to that was I
21 did a comprehensive analysis of taxes at the
22 state level on prices -- app prices. And I found
23 such a good relationship between those two that
24 it -- it is strongly indicative that to the
25 extent that the take rate works the same as an ad

1 valorem sales tax, you would also believe that
2 changes in take rates, all right, --

3 Q. Right.

4 A. -- would -- if -- if they were allowed
5 or induced through competition, would also be
6 -- would be predicted to cause changes in prices.

7 Q. My question was you didn't do any
8 comprehensive analysis of the relationship
9 between service fees in the actual world and
10 developers' prices in the actual world using
11 actual data regarding those things.

12 A. I couldn't. I just explained why that
13 Google, for the most part -- if you look in terms
14 of share transactions -- were well in the high
15 90s of -- of take rates between ■ percent and 30
16 percent.

17 So for the vast majority of the class
18 period, Google has been charging the same take
19 rate. And now you're asking me could I do a
20 comprehensive analysis across all transactions?
21 I have bad news for you. Across most or almost
22 all transactions, there has been no variation in
23 the take rate to exploit.

24 Q. Okay. So I'm -- I understand you feel
25 like you couldn't have done it. But I'm asking

1 you did you do any analysis of the relationship
2 between service fees in the actual world and
3 developers' prices in the actual world using
4 actual data.

5 A. I did for Table 9 in my report for that
6 handful of examples, but I -- the next best thing
7 that I could do -- because you need variation.

8 Q. Sir, I'm going to -- I'm going to
9 interrupt you because you're not answering my
10 question.

11 My question is, Did you do any
12 comprehensive analysis using actual data of the
13 relationship between service fees and the prices
14 that developers actually charged?

15 MS. GIULIANELLI: And I'm going to ask
16 you that you allow the witness to answer the
17 question because I believe he was answering it.

18 THE WITNESS: I think I have done
19 comprehensive analysis. As you know, your --
20 your experts put forward experiments where they
21 think they're exploiting changes in service fees
22 looking -- and going and looking for changes
23 in prices, so I -- I have. I've looked at
24 everything possible that would allow to you do it
25 in light of the restraints that -- that Google

1 has imposed throughout the class period.

2 This is why their examples are so
3 tortured. They're looking at these slight little
4 variations that either barely applied to an app
5 or where prices couldn't change because of Google
6 restriction. So I -- I did everything that I
7 could possible. I'm telling you that the most
8 comprehensive thing that -- that relates would be
9 the relationship between ad valorem sales taxes
10 at -- at the state level and prices, which do
11 -- are -- there's a tight relationship between
12 those two, right?

13 Q. Right. But the analysis of ad valorem
14 sales taxes doesn't use actual data regarding
15 developers' service fees and prices in the actual
16 world, correct?

17 A. That is correct.

18 Q. Okay. And so you haven't done any
19 analysis -- using actual data on prices and
20 service fees for the entire set of developers
21 that's at issue in this case, you haven't done
22 any comprehensive analysis regarding the
23 relationship between those things, correct?

24 A. I told you I could not do it given the
25 nature of the lack of variation --

1 done that in a -- in a peer-reviewed piece.

2 A. I'm not -- I'm not aware of it, no.

3 Q. Okay. Now, you would agree that the
4 pass-through rate is going to depend on the shape
5 of the demand curve.

6 A. Sure.

7 Q. And the Miller article that you relied
8 on for your pass-through formula has several
9 other formulas for other shape demand curves that
10 you didn't use.

11 A. I ended up doing a lot of different
12 demand curves. But the one that I ultimately
13 used and relied upon was the logit model.

14 Q. Okay. And why did you choose the
15 formula from the Miller article that was
16 associated with logit demand?

17 A. Well, hold on. That was a non sequitur.
18 I -- once I figured out the logit was
19 the best model at explaining the variation in the
20 data, that took me to the implied pass-through
21 rate from the logit model.

22 Q. Understood. And what did you do to
23 figure out that the -- let me ask it differently.

24 Did you -- did you test the structure of
25 demand using any other formula besides the

1 formula associated with logit demand?

2 A. Yes.

3 Q. What other structures of demand did you
4 test?

5 A. I tested linear and I tested constant
6 elasticity.

7 Q. Okay. And did you describe those tests
8 in your report?

9 A. No. Because I ultimately didn't rely on
10 them. The -- they just did not do as -- as good
11 of a job and explain variations in the data as
12 the logit model.

13 Q. Okay. And then how about the AIDS
14 demand? Did you -- in your reports, did you talk
15 about any test that you did to see whether demand
16 for apps fit that structure of demand?

17 A. No.

18 Q. Okay. Why not?

19 A. I felt that the logit did such a good
20 job at explaining variation, that the way to kick
21 the tires was to try linear and -- and constant
22 elasticity. These are the three, you know,
23 primary models. I'd grant you that A -- the AIDS
24 is also up there, but I felt that I had -- I had
25 run a sufficient test to convince me that -- that

1 they would land on Microsoft's productivity
2 package would be higher than if they were to land
3 on some obscure package within productivity apps.
4 I mean, it's -- it's very intuitive. It's very
5 natural.

6 Q. Now, your pass-through formula is based
7 on logit demand.

8 A. Yes.

9 Q. And one feature of logit demand is that
10 all goods in the market where demand is being
11 measured are substitutes.

12 A. I think that's a general -- that is
13 generally the case. That's fine.

14 Q. Okay. Is it your opinion that all apps
15 in each Google Play app category are substitutes?

16 A. No. And that's why I invoked this
17 concept of cluster markets. Like, you could --
18 you could take Microsoft's Excel and Microsoft's
19 Word and ask me if they're substitutes, and I
20 would say at -- at that level, they're not.
21 But -- but when you think about the fact that
22 Microsoft and Google are actually competing with
23 a package of productivity apps, that -- that it
24 would make sense to think of that as something
25 more akin to a cluster market the way that we saw

1 in the Staples and Office Depot case, that paper
2 clips and a ruler aren't necessarily substitutes;
3 but if the people generally tend to buy those
4 things from the same place, they can belong in
5 the same product market.

6 Q. So -- but -- but it's not your opinion
7 that all apps in each Google Play app category
8 are substitutes.

9 A. I just gave an example of Excel and Word
10 as being more -- more of complements, right? But
11 -- but when you think about the -- the cat -- the
12 productivity suite that Google is offering, that
13 -- that's clearly a substitute to what -- what
14 Microsoft is offering in its productivity suite.

15 Q. Right. So some of the apps in each
16 Google Play category could be complements,
17 correct?

18 A. They could be.

19 Q. And some could be substitutes.

20 A. They could be, yes.

21 Q. Right. And you haven't put forth a
22 model in your report to determine which apps in
23 each category are complements and which are
24 substitutes?

25 A. No. And it's not necessary to get the

1 implied pass-through rate.

2 Q. Right.

3 Could you go to Paragraph 78 of your
4 reply report -- well, actually, let me ask you:
5 Are you opining that all apps in each category
6 are part of a cluster market?

7 A. No. You -- you saw in my report. I'm
8 saying that they don't need to necessarily be a
9 market, a relevant market, for antitrust
10 purposes, and I give you a citation for that.

11 I think that if you -- if you really
12 wanted to -- if you forced it into that box,
13 which is unnecessary and unnatural, that you
14 could -- you could get there by -- by
15 understanding the categories functioning
16 more like a cluster market.

17 Q. Right. But you're not actually offering
18 the opinion that all of the apps in each category
19 are part of a cluster market.

20 A. No. I -- I'm offering the opinion that
21 -- that everything within the category -- that
22 the category definitions from Google define the
23 -- the contours or the arena of competition among
24 apps in that category.

25 Q. Okay. And, again, let's go to Paragraph

1 these other dimensions that I just gave you --
2 you know, consistently downward sloping,
3 statistically significant -- and -- and you're
4 looking for a tie-breaker that -- that at that
5 point comparing the R-squared could make sense.

6 Q. So you're saying that you ran -- you ran
7 regressions using linear and log-linear demand?

8 A. Or constant -- we call it "constant" --

9 Q. "Constant" --

10 A. -- "elasticity."

11 Q. "Constant elasticity" demand, and you
12 saw R-squareds that were lower than the R-squared
13 you got for logit?

14 A. Yes. But I don't want you to think that
15 that was dispositive. That was one of many
16 dimensions over which I made the -- the call.

17 Q. Right. But the regressions you ran for
18 linear and constant-elasticity demand, those
19 weren't included in the reports or the backup to
20 your reports that you disclosed, right?

21 A. I did not turn over those regressions,
22 but you can -- your -- your economists can run
23 them for themselves to get confirmation that --
24 that they don't do as good of a job explaining
25 that data.

1 that's being charged for these transactions here.
2 So you're -- you're giving -- you're assuming
3 quite a luxurious margin for the app developer to
4 make that -- that math hold.

5 Q. Fine, sir. I'm just asking whether, if
6 that were the case, that the math that I'm giving
7 you, that the effective reduction in marginal
8 costs from a 30 percent service fee to a 15
9 percent service fee for a developer with a dollar
10 marginal cost would be 25 cents instead of the
11 \$1.49?

12 A. All I'll -- all I'll grant you is that
13 if you go to your equation -- your preferred
14 equation on Page 104 and make the assumptions
15 that you did with a dollar and the move from 30
16 to 15, the math would suggest 25 -- 25 percentage
17 points of the margin cost. If you assume the
18 margin cost is a dollar, then it would be 25
19 cents.

20 Q. Right. And so what I'm -- what I'm
21 -- so you agree with me, then, that if you
22 actually calculated the average marginal cost for
23 what -- for a developer on an in-app purchase, it
24 could change the effective marginal cost paid by
25 the increase for the developer in an amount

1 that's less than the \$1.49 that you have here in
2 Table 5?

3 A. No, you don't need to do that under the
4 logit model. I will grant you that under Page
5 104, the generalized equation, that had I used
6 that to estimate my pass-through, that it would
7 depend on the marginal cost. But knowing that I
8 couldn't observe the marginal cost, right, I
9 -- among myriad other reasons that I gave you, I
10 went with the logit model because I didn't need
11 to estimate the marginal cost of the developer.

12 Q. Right. So you -- so you went with the
13 logit model for pass-through that you used in
14 your report rather than the formula in page -- on
15 Page 104 that depends on marginal costs because
16 you couldn't observe the marginal costs?

17 A. No. That wasn't the only reason. It
18 was another beneficial property of logit that it
19 doesn't require you to go out and estimate a
20 variable that might be impossible to observe,
21 right? And so -- but that's not -- that's not
22 the only reason or the primary reason why I chose
23 logit. It just happens to be a beneficial
24 property.

25 Q. Why would the model in Paragraph 225 not

1 broke out among developers such that we had guys
2 who were otherwise going to be at 99, some would
3 go to 49, some would go to 79, that's less
4 revenue -- that's less revenue for Google. So
5 Google had incentives to want to keep prices not
6 falling below a price floor.

7 Q. So other than the -- the 99 cent price
8 floor that you're referring to, are you referring
9 to any or have you offered an opinion that any
10 other constraints by Google would affect a
11 developer's ability to depart from focal point
12 pricing?

13 A. Absolutely.

14 Q. Okay.

15 A. The anti-steering rule, --

16 Q. Okay.

17 A. -- right? So I go through kind of a
18 long example, but I thought it was important, of
19 -- of the developer who was at 1.99, and then
20 given the opportunity to steer finds that 1.79,
21 you know, under 50 percent steering the sharing
22 rule, would be profit maximizing, right? So
23 Google did not present opportunities to steer.
24 And so then for your experts to say, Hey, there
25 isn't any steering here, well, I mean, they were

1 constrained by Google. Had they been given the
2 opportunity to deviate from the 99 and had it
3 been profit-maximizing to do so in order to --
4 you know, to save the delta between what Google's
5 take rate was and the rival's take rate, it would
6 have happened in spades, right, but it didn't,
7 and it didn't because of the constraints.

8 Q. Sir, is it your opinion that no
9 developer in the actual world was committed to
10 focal point pricing?

11 MS. GIULIANELLI: Objection.

12 THE WITNESS: I don't think that people
13 commit to focal point pricing. I think that
14 focal point pricing is -- is a function of what
15 your competitors are doing. It's a function of
16 the rules of the road that you're operating
17 under. It's a function of whether or not you
18 have steering opportunities.

19 So it's -- it's -- it's very
20 complicated. But I will say that what Dr. Burtis
21 said on this point, which is that because we see
22 a lot of 99, we're necessarily going to see a lot
23 of 99 in the but-for world, I say not true. It's
24 not true, because it itself is constrained by the
25 conduct -- by the challenged conduct.

1 BY MR. RAPHAEL:

2 Q. I guess what I'm asking is, is it your
3 opinion that focal point pricing doesn't explain
4 any developers' pricing in the actual world?

5 A. No, I think that's too harsh. I think
6 that focal point pricing is an important
7 consideration here.

8 Q. Okay. Now, and -- and the price floor
9 you talked about of setting prices at 99 cents,
10 that wouldn't affect developers who set their
11 prices quite a bit above 99 cents?

12 A. That's fair. I think that, when we
13 looked at the data, it's about -- it's about 20
14 percent of developers were at that 99 cent, so I
15 agree with you that -- that those would be the
16 ones who were constrained from -- from moving
17 downward.

18 Q. Okay. So the other 80 percent of
19 developers wouldn't be affected by what you're
20 calling the price floor that Google had in place?

21 A. Correct.

22 Q. Okay.

23 A. With one caveat in the sense that there
24 could be spillover effects from a floor being set
25 at 99 on what the next step up would be, but I

1 just wanted to put that out there that that's one
2 consideration. But in general, if you're looking
3 for -- if you want to go looking for where the
4 constraint hit hardest, you would look at the
5 guys who were stuck at 99.

6 Q. Okay. Does your formula for calculating
7 pass-through rates account for focal point
8 pricing in any way?

9 A. Well, it's solving for a percentage of
10 the cost savings that would be passed through to
11 end users, so I just think it's orthogonal. It's
12 just not -- it's not that it accounts or doesn't
13 account, it's just it's telling us something
14 else. It's telling us how a developer would
15 pass-through a save -- a reduction in marginal
16 costs to its end user.

17 Q. Okay. But you -- you say it's
18 orthogonal. I just -- just want to make sure
19 we're clear. Does your formula for calculating
20 pass-through rates account for focal point
21 pricing?

22 A. I don't think the -- the -- the logit
23 model is -- is thinking about these rigidities
24 that we see in the actual world caused in part by
25 the challenged conduct. But when you move to a

1 but-for world without these restraints, without
2 the price floor, without the anti-steering rules,
3 we're going to see a wider spread of prices for
4 sure. And, again, the last thing I want to say
5 is that what the formula is giving us in the
6 aggregate for a category is the percentage of
7 share. It's not telling us -- we're not asking
8 the model -- if you go to my final tables, which
9 breaks it out by -- by app category, we're trying
10 to use it to estimate damages in terms of
11 overcharges to the consumers. We -- we're not
12 using the model to make a precise prediction of
13 what Tinder would charge its customers in the
14 but-for world in October of 2019. That's not
15 what -- we're not asking that of the model, all
16 right?

17 Q. So your model is not actually -- your
18 pass-through model is not trying to predict what
19 any developer would have charged its customers in
20 the but-for world during the class period?

21 MS. GIULIANELLI: Objection.

22 THE WITNESS: I don't think that we are
23 aiming for the price of a given app in a given
24 month on a given plan. That's not what we're
25 trying to estimate. What we're trying to figure

1 out, for the purposes of impact, is to say that
2 if all app developers within a category achieved
3 a certain cost reduction by virtue of enhanced
4 competition and, thereby, lower take rate, how
5 much of that would be shared with consumers in
6 the aggregate across the category. And, you
7 know, what I'm hearing is, oh, my God, have you
8 ruled out 99-cent things or things that end in 9?
9 No, we haven't -- we haven't ruled that out. But
10 we're talking about the share of the costs that
11 are being saved in the aggregate across a
12 category. We can allow for 79-cent pricing, we
13 can allow for 99-cent pricing, 29-cent pricing in
14 the but-for world. We're not putting any
15 restrictions on -- on what the price of a
16 particular app in a particular plan at a
17 particular point in time are.

18 BY MR. RAPHAEL:

19 Q. Right. So I just want to make sure I
20 get an answer to my question. So your model for
21 a pass-through isn't trying to take account in
22 any specific way for the phenomenon of focal
23 point pricing?

24 A. I -- I don't -- I don't think that the
25 mod -- that particular logit estimate of the 89

1 percent is accounting or needs to take account.
2 I think I need to account for it in my overall
3 opinions about what the but-for world would look
4 like. But the logit model is just telling us
5 what the implied pass-through rate is given a
6 reduction in costs, given the concentration
7 -- the typical concentration we see within
8 categories in -- you know, in the app industry.

9 Q. Okay. Your regressions regarding the
10 logit demand, did they have any fixed effect or
11 other mechanism to control for focal point
12 pricing?

13 A. Well, they did use fixed effects. I
14 don't know if you meant to say that, but they
15 don't have a separate control variable for focal
16 point. But it is true, now that you brought this
17 up, we do have app fixed effects, right? So to
18 the extent that an app stayed constant at a given
19 price over time or always ended at 99 -- let me
20 just say for the record what fixed effects is.
21 Quite literally, it's controlling for any of
22 these attributes of the app that are constant
23 over time. And so if that tendency to want to
24 end in 99 or 79 or 69 is constant, then, yes, my
25 regressions control for it.

1 Google.

2 BY MR. RAPHAEL:

3 Q. So the answer to my question is yes, all
4 developers would participate in the play points
5 program in the but-for world?

6 MS. GIULIANELLI: Objection.

7 THE WITNESS: I -- I like the way that I
8 said it better, which is that if a developer
9 thought that a substantial percentage of its
10 customers were going to be redeeming points via
11 this new and improved program, and if Google made
12 some kind of requirement that said you have to
13 sign a piece of paper so that you can accept the
14 payments under this program, the developers would
15 do it.

16 BY MR. RAPHAEL:

17 Q. Do you know if Google has that
18 requirement in the actual world?

19 A. I don't know if the Google has the
20 requirement in the actual world.

21 Q. Would that change your opinion as to
22 what would happen in the but-for world?

23 A. No. Because the program, for all intent
24 and purposes, is effectively zero right now.

25 Google doesn't need to be generous with its

1 points program because Google is immunized from
2 competition. Now, I think it would be
3 considering to look at career where Google was
4 forced because of one store to increase its
5 subsidy to around █ percent and all of a sudden
6 that's starting to approach something real. You
7 know █ percent is not real. █ percent
8 actually might make a difference on purchase, and
9 I'll just leave it at that.

10 Q. What's your standard for the percentage
11 of cash back accounted for by play points that
12 would make a difference to competition?

13 A. Not about difference to competition.
14 It's what would be sufficiently generous such
15 that consumers would partake in the program.

16 Q. And what amount of a cash back would be
17 sufficiently generous that consumers would
18 partake in the play points program?

19 A. Well, when you think about, like, AMEX
20 customers partaking in their points that American
21 Express gives back, I think AMEX is more generous
22 than 0.2 percent. In fact, Williams has the --
23 the percentage that AMEX shares with its -- with
24 its customers. It's over 1 percent.

25 So, you know, I don't know exactly the

1 A. I think the model is. I think that at 8
2 percent, the economic intuition -- well, this is
3 the intuition that I'm drawing from the model --
4 is that when the benefit gets so large, that is
5 going to spur participation and usage in the
6 system.

7 Q. Great.

8 Your -- your testimony here today, sir,
9 is that you have a model in your reports that can
10 tell the Court and the jury in this case which of
11 the members of the putative class would have
12 signed up for play points and who would have used
13 them?

14 MS. GIULIANELLI: Objection to the form.

15 THE WITNESS: I didn't say that. I said
16 that if the but-for subsidy were to rise to 8
17 percent, then it would be embraced -- the play
18 points system would be embraced across the class
19 just as the way that the points system in the
20 AMEX marketplace is embraced across American
21 Express users.

22 BY MR. RAPHAEL:

23 Q. Okay. So I want to -- I want to be
24 clear. You have -- your testimony is that in the
25 but-for world, every member of the putative class

1 would sign up for the play points program and use
2 their play points?

3 MS. GIULIANELLI: Objection.

4 THE WITNESS: I cannot -- this is the
5 first time I've been asked that question. I'm
6 just hearing it afresh, right? I cannot fathom
7 why a user would say, no, take back -- I was
8 going to spend a hundred dollars and I realize
9 you're trying to give me \$8, but, no, I don't
10 want the \$8, I want to spend the full hundred
11 myself. It would be crazy -- it would be crazy
12 to -- to do that.

13 BY MR. RAPHAEL:

14 Q. Sir, in the actual world, some consumers
15 don't sign up for play points or don't use the
16 play points that they earn, correct?

17 A. We've established, I hope, that when you
18 get [REDACTED] back on a hundred dollar purchase,
19 I'd say to myself I'm a busy dude, I don't know
20 if I'm going to sign up for this thing and go
21 through the hassle for the [REDACTED] subsidy.

22 Q. Right. And so your testimony is that if
23 Google changed the play points rate that you've
24 put in your report, that every member of the
25 putative class would have signed up for the play

1 the allocation of damages, as you recall, I do
2 have a method for allowing a certain amount of
3 granularity, at least at the category level,
4 with respect to both the take rate and the
5 pass-through rate.

6 Q. Right. And does -- your model of
7 allocation of damages, is that a hybrid model?

8 A. I could do it for the hybrid model. The
9 only one that I think you've seen it for the take
10 rate competition.

11 Q. But in your reports you haven't done a
12 hybrid model that does the damages allocation for
13 each individual transaction.

14 A. I don't do it at the transaction level.
15 I don't do it at the customer/app payer level.
16 But I could -- if the fact-finder were so
17 inclined to allocate damages that way, the table
18 could go on for hundreds of thousands or millions
19 of rows, and we could get -- we could get to you
20 the -- with granularity, the pass-through rate
21 and the but-for take rate for each app/consumer
22 payer, if you were so inclined. I think that
23 would be very painful, --

24 Q. Right.

25 A. -- and I didn't want to show you that in

1 the report because it would -- it would go on for
2 so long. So I showed it to you at the category
3 level.

4 Q. And in those millions of rows that you
5 described, would each one of those rows have a
6 net change in play points and the pass-through of
7 the service fee rate that would -- that would,
8 essentially, be -- would lower the amount that
9 Google takes home compared to the actual world?

10 A. You could derive that, yes, for each
11 row. You could.

12 Q. But is it your opinion that that would
13 actually be the case for every single row if you
14 applied the hybrid model at the individual
15 transaction level?

16 A. How about at the -- I wouldn't do it at
17 the tran -- we could did it, how about this, for
18 customer/app payers. There would still be
19 millions, right?

20 Q. Sure.

21 A. Is that enough? We don't need to go
22 into the tens of millions.

23 Q. Sure.

24 A. If you were so inclined, you could
25 compute the -- the net takings, if you will, by

C E R T I F I C A T E

I do hereby certify that I am a Notary Public in good standing, that the aforesaid testimony was taken before me, pursuant to notice, at the time and place indicated; that said deponent was by me duly sworn to tell the truth, the whole truth, and nothing but the truth; that the testimony of said deponent was correctly recorded in machine shorthand by me and thereafter transcribed under my supervision with computer-aided transcription; that the deposition is a true and correct record of the testimony given by the witness; and that I am neither of counsel nor kin to any party in said action, nor interested in the outcome thereof.

WITNESS my hand and official seal this 13th day of May, 2022.



Notary Public


REDACTED VERSION

Exhibit A57 to C. Cramer Declaration

EXHIBIT 12

FILED UNDER SEAL





Agenda

Goals:

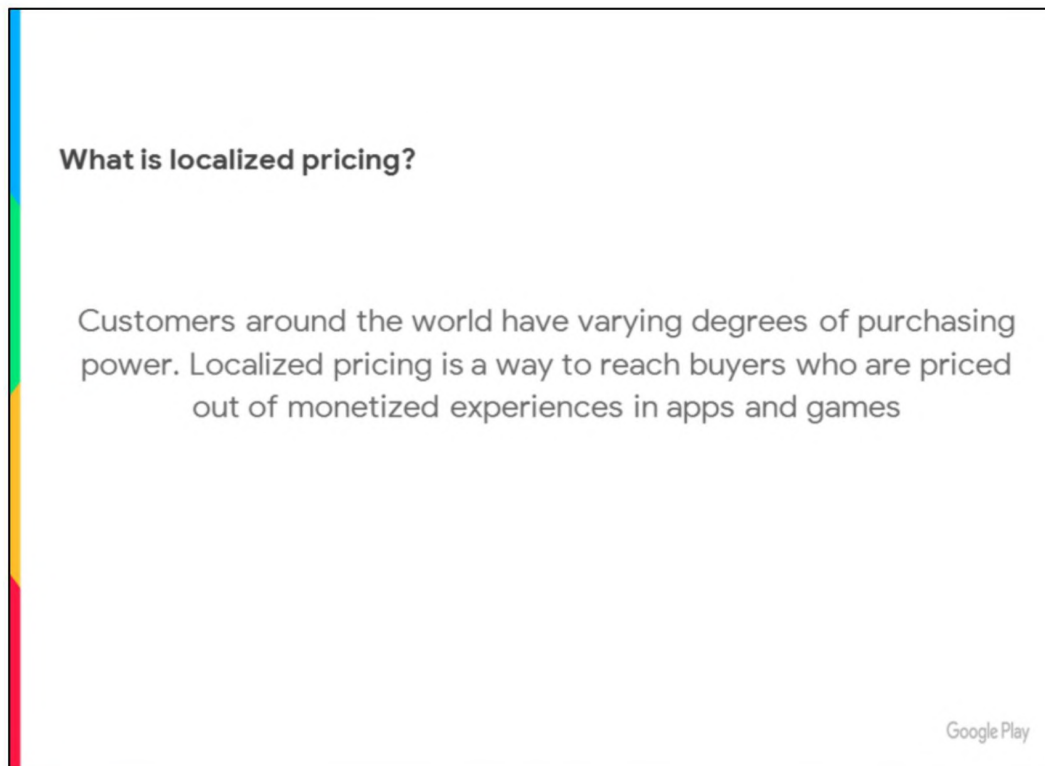
- Review the pricing guidance initiative and get feedback
- Make a decision on lowering minimum allowed prices for more markets

What we'll cover:

- Context
- Pricing guidance
 - Background, vision and goals
 - Work done so far
 - Next steps
- Lowering minimum prices (sub dollar)
 - Previous work & learnings
 - Proposal

Google Play

Today we want to review the pricing guidance initiative that Commerce have been partnering with Growth Consulting, Console, ProdOps and other teams on and get early feedback on the initiative to unlock more buyers through providing localized pricing insights and tools to our developers. We also want to discuss one of the key capabilities in order for developers to price locally - the ability to price below \$1 USD. We have enabled this in many markets already and we want to expand the list of markets and would love to get a decision for the same.



As we know, Play's end users are not all the same. Many have varying degrees of purchasing power depending on their location, income status and needs. Localized pricing is a way to reach buyers who have been historically priced out of monetized experiences in apps and games.

Using local price points to unlock buyers is not new; common practice across many digital industries



"When you submit a game to Steam, **Valve automatically suggests prices for local currencies in other regions.** You have the option to change these numbers at will...likely a combination of current exchange rates, regional sales trends, and other factors" - [The weird economics behind steam prices around the world, PC Gamer](#)






"..What India doesn't have, however, is a culture of spending on video...**In India, where a movie can cost as little as 29 rupees** (44 cents) and monthly subscriptions are as little as 200 rupees (\$3)... **Prime costs \$15 per year** — whereas Netflix charges over \$7.50 per month." - [How Netflix Lost Big to Amazon in India, Wired](#)

Google Play

The idea of Localized pricing is not new. Other platforms have been taking advantage of specialized pricing by market. Steam for example, suggests adjusted prices by region to developers on their platform. And another interesting case study is the journey Amazon prime went through lowering prices in India to capture market share - Prime costs as low as \$1.25/month or \$15/year in IN

Although less prevalent on mobile, developers who do localize see dramatic performance uplift and growth in buyers

"We really have to get on the ground and get our hands dirty to know what each country needs ...identifies pricing and payment strategies in each market" - [How Garena's Free Fire competes with Fortnite and PUBG Mobile, VentureBeat](#). Designed to appeal to emerging markets, Free Fire has become the top grossing game globally*, with **over 85% of spend coming from emerging markets**.


"Localised experiments...we reduced the price of Golden Spin and Win in India Only from \$0.99 to \$0.49 ...saw +198% daily rev uplift and +415% uplift in daily payers" - [Miniclip in IN presentation](#)

"Locally relevant prices on Lords Mobile led to 122% YoY growth"

* April 2020 spend [More examples](#)


Google Play


We're also seeing devs on Play seeing dramatic growth by focusing on regional users. Free Fire has had a regional growth strategy which includes identifying pricing and payment strategies by market. And that regionally sensitive strategy has been very successful for them at the same time as other publishers have largely ignored those markets. Other developers like Miniclip and IGG to name a couple have also experimented with localized pricing as well. Anecdotes like these got us excited about extending this knowledge to more developers on the platform so they too could have a meaningful presence and grow in emerging markets.



One of the reasons contributing to buyers' growth is that these developers have made buyer penetration an explicit priority

“ At this point, our direction is to ensure many more players can afford to buy and enjoy Free Fire's content, rather than boosting price and ARPPU. ”

 **Garena**
Play's #1 top grossing Developer w/ 90% of spend from Emerging markets

 **miHoYo**
YOUR DREAMS SAVE THE WORLD


“ We would prefer to have a higher buyer rate because this means a bigger paying user base. Maybe they can't pay as much as US users now but they will catch up, and it also can share the risk if revenue doesn't rely only on big whales. ”


Google Play

Talking to these developers, it's clear that they have made buyer penetration in emerging markets an explicit priority and shifted their pricing strategies accordingly.

They are also seeing that a large buyer base drives not just spend but higher retention and lower spend volatility


“ What we learnt is that the buyer rate is very important for the MOBA games, especially for the SEA market. Higher buyer rate is not only beneficial for revenue, but also for higher retention rate. That is surprising. ”

 MOONTON

 “ We would prefer higher buyer rate than lower buyer rate, the negative effect of losing big whales in the game would be too significant. ”

Google Play

The developers who did adopt regional pricing are also seeing more benefits that increased buyers, they also report a higher retention with users making additional purchases at the same rate as those buying at higher price points. They also like that they are not dependent on a few whales.



Localized Pricing Guidance Goals

*Offer a world class Pricing Guidance System that helps developers best monetize our diverse, global user base by helping to **adjust prices to better reflect local demand**.*

Objectives we want to achieve for Developers

- Convert users to paying users in the game (spender conversion)
- Increase buyer rate (PAU/DAU)
- Net neutral/+ve short term revenue without cannibalization*

Plan











- Analysis : Play data insights and features that are the most useful for pricing guidance for developers
- Research : Identify developers and markets that will most benefit
- Develop : Tools for these developers to enable localized pricing

*long term, we want to be able to demonstrably show LTV improvement

Google Play

Our goal is to offer a world class price guidance system so more developers can advantage of localized pricing to monetize our diverse, global user base by adjusting prices to better reflect local demand. This pricing system will analyze an app or game's SKU distribution and compare it against peers, genre leaders at a country level and surface those opportunities to our developers. Our objectives are about increasing spender conversion and buyer rate while also avoiding revenue cannibalization. Here developer and google incentives are very aligned as we try to adapt for users everywhere.

Play has localized pricing offerings; but we can do more to enable more developers unlock more buyers in emerging markets

	Offers		Google funded localized promotions
	Pricing Conversion		Showing prices in local currency
			"Charm" pricing
			Calculate FX rates*
	Pricing tools/guidance		Lower minimum prices (below <\$1)**
			Provide market based pricing insights
			Enable testing of different regional prices

Today's Focus


*Play Console has one time FX conversion
 ** Already done for certain markets (~20): BR, CL, CO, EG, HU, ID, IN, MX, MY, NG, PE, PH, PL, RU, SA, TH, TR, UA, VN, ZA. Due to FX fluctuations the min prices in 29 additional countries is also lower than 1 USD (0.5 USD < min price < 0.8 USD)

Google Play


So what have we done already and what does this project that could complement that work? Play already has been projects in this area. We already offer more localized promotions to help convert buyers in these markets. We also offer some localization tools such currency conversion, suggest charm pricing and calculate FX rates.

Where we can really do more is providing pricing guidance or tools and that's what we want to focus on today : For example, lowering minimum prices in countries to reflect purchasing power parity better so developers can price lower if they want to. We do this in certain markets and ahve seen promising results and later in the deck, we will bring up a proposal to expand to more markets and eventually to have min prices reflect PPP more globally. We also think we can do more in providing more pricing insights looking at Play data to help developers correct this value mismatch using the levers that they have : introducing new SKUs at different price points for example. We could then go a step further and enable developers to test different prices.

We will deep dive into two key pricing guidance features



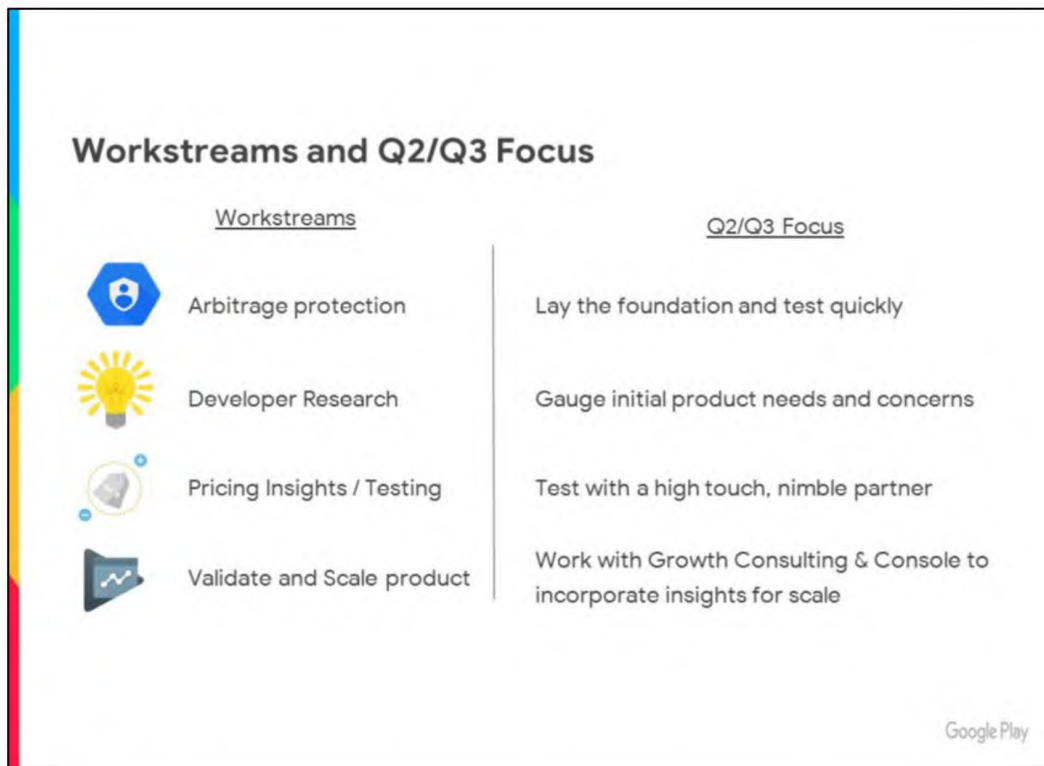
Localized Pricing
Guide developers to price items based on local demand



Lower Minimum Prices
Provide ability for developers to price under <\$1USD equivalent


Google Play

Let's deep dive into localized pricing guidance first



As part of the localized pricing plan, one of the key concerns that we already knew in having different prices in different markets, especially for big developers was around arbitrage abuse so we wanted to add that a workstream from the start. Next, we wanted to do some initial developer research and understand needs in this space. Next was to understand what insights we can actually get using Play data and tools we can build that would be helpful to inform regional pricing strategies. Lastly, we wanted to have a plan on how best to turn this into a scaled offering that growth consulting can take forward and could be incorporated into Console. We kicked off these workstreams in Q2 with the goal to build a localized pricing prototype that could help prove out the concept and inform how we scale.

In the next few slides, I'll go through the progress we made in each of these workstreams. Just note that while both games and apps are part of this initiative, we have started with games initially, so the focus of this presentation will be mostly games, although the underlying framework can be applied to both games and subs. We plan to build a subs specific version in Q4/Q1.



Lay the foundation for Price Arbitrage

We use signals from [ARES](#) and Play to identify location abuse - the model has been dark launched and the live experience is planned for Q4*

Goal

- Identify location abuse by looking at geo and device related signals from ARES and Play
- Price arbitrage is one use case, but will be used for other location abuse use cases such as refund abuse

Approach

- Create model for location abuse probability and block purchase when price arbitrage attempt is suspected


Progress/ Status

- Dark launched to create baseline, understand size of problem and refine if needed
- Model refinements in progress and is on track for a live launch in Q4

Google Play

As we talked about earlier, some devs were concerned about users intentionally spoofing location for the explicit purpose of gaining access to lower prices in another country. This is spearheaded by the abuse team - where they leveraged signals from ARES and created a model to detect arbitrage based on location for many use cases, one of which is price related arbitrage. Our goal is to identify the size of the problem as well as refine the model further if needed. This was dark launched for all transactions i.e. doesn't actually block transactions, but just flags them so we can analyze. We compared abuse in the [REDACTED] we were running to overall #s. So far, there seems to be negligible abuse. We are currently working on refining this model and launching a live version. Once that's fixed, we plan to launch live for all transactions in Q4.

Now I'll hand over to Dafna to talk through some of the developer research and findings



Developer outreach for gauging interest and needs

Reached out to developers via high touch engagements, surveys and community/BD research to understand key concerns and product needs

Approach	Status	Results Summary
Small Survey via BD	Complete	<div>100% Interested in receiving pricing guidance from Play</div> <div>83% Would like to participate in a Beta</div> <div>66% Do not currently have testing tools for pricing</div>
Developer community research (~200)	Complete	84% of developers responded they would be interested or very interested in regional pricing guidance from Google (n=82) (more details on next slide)
Interviews with regional BDs and developers	Ongoing	"Due to the success of Free Fire in countries like Brazil and Mexico our partners now believe they can also do it", Adi, EMEA Play BD "If we have a higher pay rate, we won't be dependent on a few whales", Nexon
Leveraging existing internal and external research	Ongoing	External Research , Google Medium Posts (1,2), Developer case studies
Console UXR	Upcoming	Understand pricing practices, tools and guidance needs led by the Console team

Google Play

To assess the interest level and understand key concerns and needs we did some initial outreach through various ways: we had a small survey for top managed developers, we collaborated with the marketing team to survey over 200 developers as part of our Developer Research Community.

We also interviewed BD managers and developers directly as well as reviewed existing external and internal research.

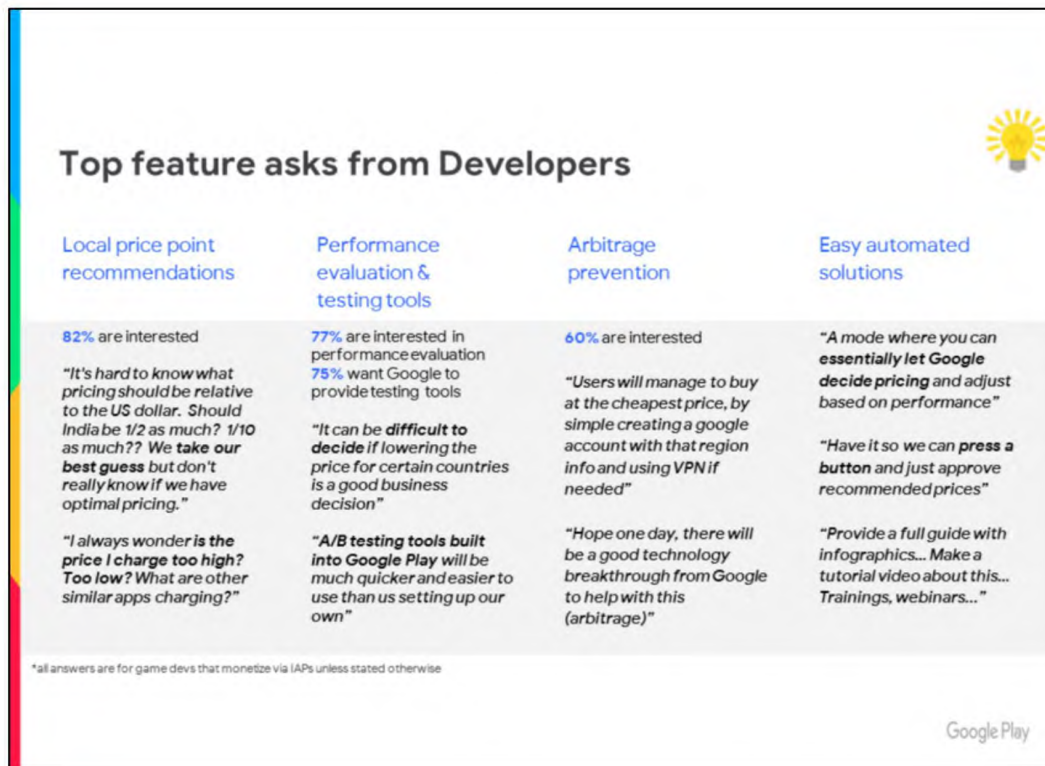
The feedback we've received in a variety of methods seem to align. We got some good directional product insights, and looks like there is a lot of interest in the topic.

Another insight we found very interesting is that

developers care deeply about increasing their buyer penetration in global markets.

33% of all developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative). This number when up to 43% for companies with over 250 employees.

As a next step the console team is also planning a UX research to go deeper into developer pricing practices and get feedback on our proposals



So what are developers asking us for?

The top feature ask is around price point recommendation. Even when they want to localize prices, they don't know by how much. Should the India price for example be $\frac{1}{2}$ as the US price? $\frac{1}{10}$?

They also want us to help assess their performance, and even provide the testing tools, and even some of the more sophisticated developers don't have the right tools to a/b testing prices.

As Neethi mentioned, some are concerned about price arbitrage and they rely on us to help.

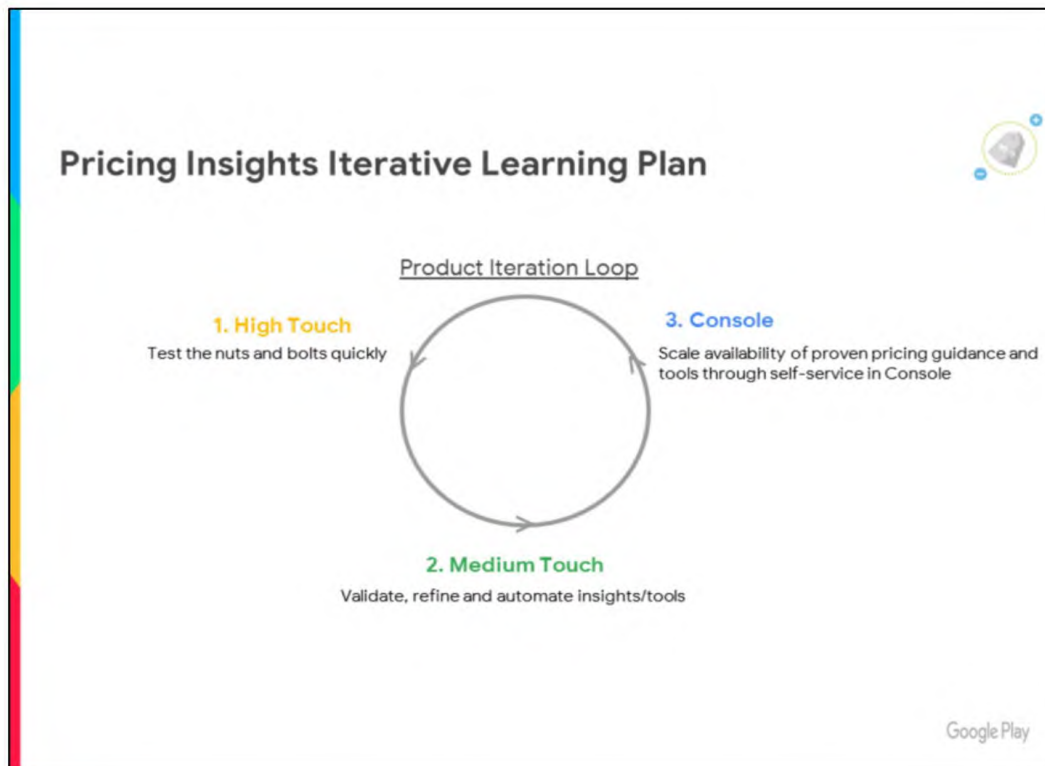
Latest, they look for easy solutions they can understand.

For smaller Developers this might mean a one-click solutions, but it's also a lot about education and how to

18% of IAP developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)

33% of all developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)

43% of companies with 250+ employees said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)




Ok so how are we testing and validating the product and who are we working with? Our plan breaks up into three phases - high touch, medium touch and console. In order to get quick feedback on the methodology and insights, we partnered with a High Touch GVP partner who was willing to implement our advice, share feedback and help us iterate quickly. We have used the feedback from this EAP to iterate and validate the product with even more developers through Growth Consulting. Finally, we will leverage those learnings to scale insights and tools through self service functionality in the Console.

High Touch Engagement

Experimented with two models based on developer preference and sophistication


Option 1 : Insights Only

- Play provides peer and genre benchmark data
- Play provides recommendations, including price point coverage gaps for identified markets
- Dev tests pricing recommendations and shares results with Play



Option 2 : Full Service

- Play provides peer and genre benchmark data
- Play provides recommendations, including price point coverage gaps for identified markets
- Play helps to A/B test the dev selected pricing changes and shares results with game team
- Dev rolls out changes from winning variant



Google Play


For our high touch partners, we've offered two service levels - Option 1 is Play providing pricing insights for specific countries by benchmarking an app against its peers and genre. Our Price Benchmarking report would highlight SKU coverage gaps and the value deficit for SKUs for players. Example slide from the report is shown on the right. The Developer would test these recommendations and share their results with Play.

Option 2 is the full service option that includes the Price Benchmarking report but we would also A/B test the recommended prices for the developer and share results of the experiment with them. The developer would make the necessary changes assuming that the

experiment was successful. We're currently running pricing experiments with [REDACTED] [REDACTED] So far, the results are very promising where one of the variants is seeing significant uplift in buyers, orders and overall spend. [REDACTED] is encouraged and we've begun engagement with another studio at the developer - [REDACTED]

I'll add that there are two advantages of the full service for Play: 1. We control the data resulting from the pricing analysis so we can measure the effectiveness of our pricing recommendations and 2. We can explore what a potential price A/B testing product could look like.

--
[REDACTED] asked if we could do the experiment for them. The complexity of organizing and testing SKUs across markets was something they didn't want to deal with.



Early Learnings so far

- Our goal should be enable discovery and guidance : dev can decide how they want to act on it (introduce new price points, discount everything etc).
- Knowledge about specific markets and pricing is low even among sophisticated devs; experiments are often ad-hoc (e.g. ████████ in India)
 - Opportunity identification from Play would add a lot of value (e.g. focus on ID because of x and y)
 - Early findings were aligned with developer insights
 - Early testing results were also [positive and promising](#)
- Devs are often willing to take the PR risk for testing and learning
 - They find ways to manage it (keep experiments to a certain traffic, handle customer support etc)

Google Play

We've had a few learnings given our conversations with developers and working with ██████ on the EAP. Our goal is to surface opportunities and provide guidance - the developers should decide on what they want to do with that information. ██████ for instance wanted to test a blanket 50% off all SKUs in specific markets. They wanted to be aggressive but others might not choose to be.

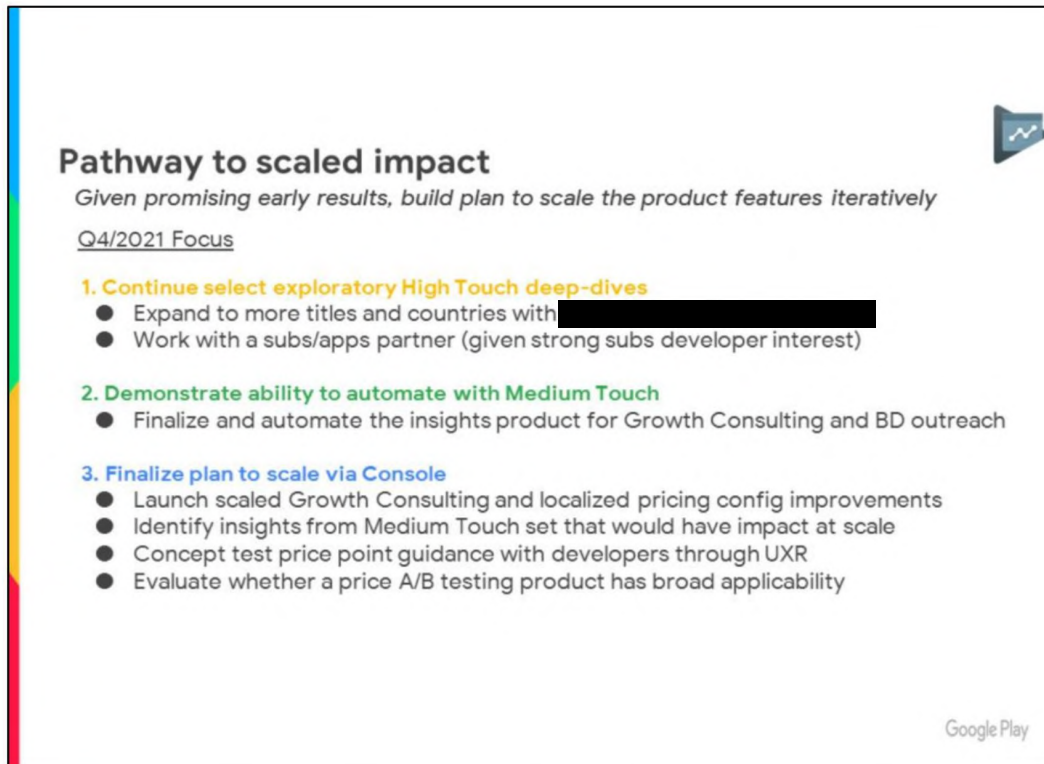
Even sophisticated developers don't invest a whole lot of time into pricing strategies across markets. Even when they implement localized pricing, they approach it in an ad-hoc fashion because they don't have context into the opportunity. We can point their biggest opportunities across markets and even recommend specific SKUs they should introduce. That context is

invaluable.

██████ was willing to manage the PR risk, handling customer support issues, etc. that resulted from the experiment, although they haven't seen any issues so far

Neethi's notes on uplift :

For ██████ we got stat sig orders and buyers pretty quickly at 5% but we had to go to 20% for an arm and run it for 2 weeks to get stat sig on spend. We heard from ██████████ too that they have to run the experiments for longer to understand impact on LTV and not just move money around. Not all developers will be willing to take that PR risk for running for so long. So we are workign wtih bizops to fund other ways to measure impact from localized pricing from a spend perspective. One idea is that just like Play, in many games HVUs account for most of the spend. While we don't want HVU cannibalization, we expect most of the spend uplift to come from non HVUs. So we did an analysis to calculate uplift without HVUs and we saw some encouraging results. We need to explore this more as we look at success metrics besides buyer and order uplift.



Pathway to scaled impact

Given promising early results, build plan to scale the product features iteratively

Q4/2021 Focus

- 1. Continue select exploratory High Touch deep-dives**
 - Expand to more titles and countries with [REDACTED]
 - Work with a subs/apps partner (given strong subs developer interest)
- 2. Demonstrate ability to automate with Medium Touch**
 - Finalize and automate the insights product for Growth Consulting and BD outreach
- 3. Finalize plan to scale via Console**
 - Launch scaled Growth Consulting and localized pricing config improvements
 - Identify insights from Medium Touch set that would have impact at scale
 - Concept test price point guidance with developers through UXR
 - Evaluate whether a price A/B testing product has broad applicability

Google Play

So what is our plan for Q4 and in 2021?

We plan to expand the [REDACTED] EAP to more titles at the company targeting more countries. We will also engage with [REDACTED] starting with option 1. On the apps side, we're currently narrowing down a partner to work with - we've had strong interest from subs developers. We're working with growth consulting to iterate, scale and automate the insights and reach even more developers. We've generated a list of partners that we will be delivering pricing consultations starting this quarter and into 2021.

And we're actively in conversations with the Console team to bring these insights to the console. We're leveraging what we learn from high touch and medium

touch to inform the design of pricing insights in the console. Relatedly, we're also evaluating if the price a/b testing product has broad applicability.

We will deep dive into two key pricing guidance features



Localized Pricing

Guide developers to price items based on local demand



Lower Minimum Prices

Provide ability for developers to price under <\$1USD equivalent

Google Play

Sub dollar proposal: executive summary

- Developers have been asking for the ability to set **very low value SKUs** (sub-dollar)
- We have traditionally limited the prices to ~1 USD, but we have **opportunity to go lower**
- We want to go **as low as transaction costs allow** but there are some considerations we need to take into account like changes in the FOP mix that impact fees, FX rates changes and Loyalty
- We tested lowering the minimum prices in 20 markets, primarily emerging markets like India & Brazil
- There's evidence that sub-dollar pricing has the **potential to unlock new buyers so we want to expand further**

Proposal:

1. Lower the minimum prices in 20 additional markets & test sub-dollar pricing in mature markets
2. Work with xfn teams (Finance, Payments, Loyalty, etc.) on a path forward for a global roll out

Google Play

Sub-dollar pricing works in emerging markets because \$1 is considered too high for many users

Spotify premium US pricing

Shortest duration 1 month
Minimum price USD 9.99

Prepay
One-time payment. Top up when you want. Does not auto-renew.

1 year	One-time payment of \$119.88
1 month	One-time payment of \$9.99

Spotify premium India pricing

Shortest duration 1 day
Minimum price INR 13 (USD \$0.17)

Prepay
One-time payment. Top up when you want. Does not auto-renew.

Get 1 day for ₹13	USD \$0.17
Get 7 days for ₹39	USD \$0.52
Get 1 month for ₹129	USD \$1.72
Get 3 months for ₹389	USD \$5.18

Source: Spotify web site

Google Play

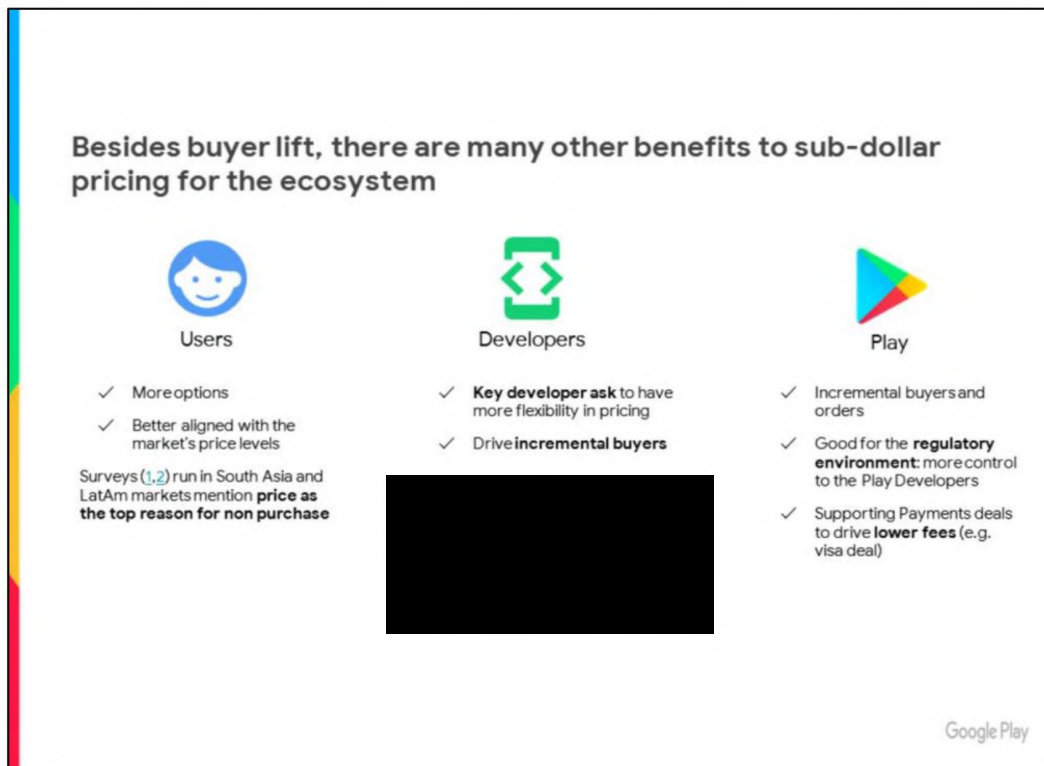
A key component of price localization is adjusting the prices to the local purchasing power and consumer expectations, and in many markets this means offering very low prices, which is what refer to as sub-dollar pricing.

Let's take Spotify for example.

Many of us are familiar with the US pricing, where the shortest duration is monthly and the minimum price is USD 9.99 for a month

In India however, you can buy daily or weekly subscriptions with a cost as low as 13 INR which is about 17 US Cents. The monthly subscription price is also localized at INR 129 or USD 1.72

Sub-Dollar pricing is expected to unlock new buyers, especially in emerging markets, and as we discussed before, increasing the buyer share is one of the top KPIs for our developers.



Besides buyer uplift, there are many other benefits to sub-dollar pricing.

This is great for our users, making paid digital content more accessible to them. According to our surveys in SEA and LatAm, price was mentioned as the top reason when we asked Play “nevers” why that have never made a purchase on Play.

From the developers perspective, they want more flexibility around their pricing. Many Developers that tested sub dollar pricing find this strategy effective, and they have asked us to expand the sub dollar capability to more markets.

In addition to making our users and developers happy, this is also good for the regulatory environment, giving developers more control. It's also helping us support the Payments team negotiating lower fees from our payment partners.

However Developers are not always able to offer sub-dollar prices due to our pricing policy

What The [Play pricing policy](#) defines the price range Developers can set for paid apps and in-app purchases (varies by location and currency)

Why The minimum price is set to account for transaction costs but we have an opportunity to go lower¹

Current approach As a rule, the minimum price is set to the equivalent of ~1USD
In an effort to better align our price ranges with local demand, we have previously updated the Min prices for 20 emerging markets ([wave 1](#))

¹ We also aim to drive down transactions costs by negotiating better deals with Payment partners, launching less expensive FOPs, etc)

Location	Download free apps	Download paid apps	Local Currency and Price Range
South Africa	✓	✓	ZAR 3.99 - 5,500.00
Vietnam	✓	✓	VND 6,000.00 - 9,000,000.00
United States (1)	✓	✓	USD 99 - 400.00
Ukraine (2)	✓	✓	UAH 5.00 - 9,000.00
Tanzania	✓	✓	TZS 2,200.00 - 894,000.00
Taiwan	✓	✓	TWD 30.00 - 13,370.00
Turkey	✓	✓	TRY 0.99 - 1,337.00
Thailand	✓	✓	THB 10.00 - 13,370.00
Singapore	✓	✓	SGD 99 - 500.00
Sweden	✓	✓	SEK 7.00 - 5,000.00
South Arabia	✓	✓	SAR 0.99 - 1,337.00
Russia (3)	✓	✓	RUB 15.00 - 42,000.00
Senegal	✓	✓	XOF 99 to 41,000
Romania	✓	✓	RON 3.50 - 1,400.00
Qatar	✓	✓	QAR 3.50 - 1,500.00
Paraguay	✓	✓	PYG 6,700 to 2,400,000
Poland	✓	✓	PLN 1.79 - 1,600.00
Pakistan	✓	✓	PKR 100.00 - 42,000.00
Philippines	✓	✓	PHP 15.00 - 18,000.00
Peru	✓	✓	PEN 0.99 - 1,337.00
New Zealand	✓	✓	NZD 99 - 600.00

Google Play

The reason we are discussing this today, is because developers are not always able to offer those low prices due to our pricing policy in which we define the SKU price range developers can set in the console. Why don't we just allow 1c SKUs? We limit the minimum price due to our transaction costs. As a rule, the min price is set to the local currency equivalent of 1 USD, but we have an opportunity to go lower while still covering our transaction costs. In parallel, we are also aiming to drive down transactions costs, by negotiating better deals with our payment partners, or launching more FOPs with lower fees.

In an effort to better align our price ranges with the

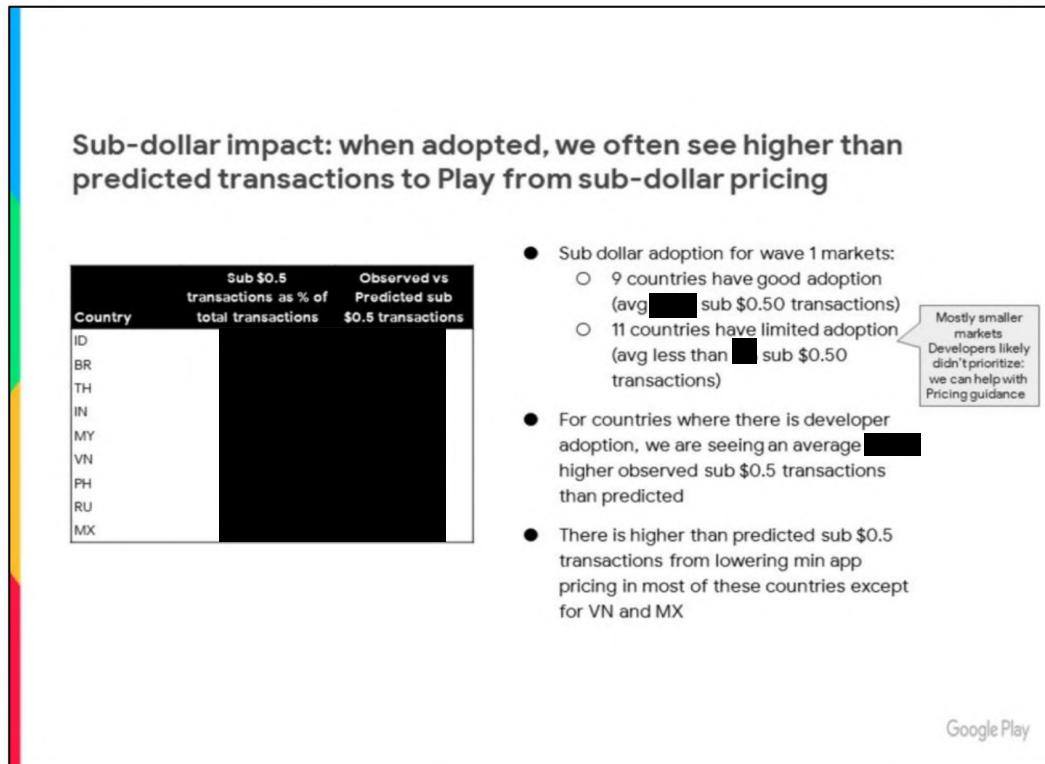
local demand, in 2015 we have lowered the minimum prices in 20 key emerging markets, such as india, brazil and indonesia, and today, we are proposing to expand it to more markets.

I'll hand it over to tung who will share some of the results.

E.g. 7 BOB Bolivian boliviano = 1 USD

10 THB = 0.32 USD

2200 TZS Tanzanian shilling = 0.95 USD



Countries listed here represented [redacted] of total sub \$0.50 transactions in the 20 launched countries

Methodology: Look at the trend for sub \$0.50 transactions and \$1+ pricing by country to identify the point where there is a trend divergence. Predicted sub \$0.50 order volume is based on the assumption that sub \$0.50 would continue to perform in line with the trend of \$1+ transaction which was observed before the divergence. Observed vs predicted is based on the average difference between June 2019 - Feb 2020. The time period was selected to eliminate impact of COVID and there was not wide adoption of sub \$0.5 before Q1 2019 in many countries

- is this statistical
- are you comparing users with similar treatment/behaviors
- limitation - don't have a holdback group, launched 100% in this country. to do causal impact - need more time to find counterfactual

Wave 2 proposal: phased approach to expand the reduction of the minimum prices

1. **Expand:** enable the [next set of countries](#)

Country selection rational	Proposed new Min price
Lower purchasing power & higher share of small transactions	The local currency equivalent of the highest of the two: (1) [REDACTED] (2) The price at which average transaction cost < [REDACTED] OR match competitors as long as transaction cost is not higher than [REDACTED]
Markets where the competitors minimum price is lower	Match competitors
Mature market to inform global expansion decision	Allowlist partners to test in mature markets, e.g. [REDACTED] and [REDACTED]

1. **Activate:** drive sub dollar Developer adoption

- Play BD: best practices guide (e.g. [sub dollar-pricing playbook](#)), Developer consultations, Play academy videos, case studies, etc.
- Localized pricing guidance project: Growth Consulting high & medium touch pilots (Q4), scaled activation via the console (2021)

2. **Go global:** define the approach for a future global expansion

Google Play

We wanted to share our proposal for a phased approach to expand sub-dollar pricing, and today we are also asking for your approval to enable the next set of countries.

The first step will be expanding sub-dollar to more countries with lower purchasing power, as well as to markets where the competitors minimum prices are lower.

We also want to test with mature markets to inform global expansion decisions, so we are partnering with Play BD and G1 to allow testing low value SKUs in KR and the US as a temporary experiment.

The second phase will be driving developer adoption via Play BD, as well as the localized pricing guidance project.

And lastly, we want to consider mature markets as well, and define our approach for a full global roll out

In the next slide we'll show the detailed list of the next set of countries and the proposed new minimum prices.

I'll go over the high-level methodology, and Tung can provide more details if you have any questions.

At a high-level, we set the price at which the average transaction cost for low value transactions at the current FOP mix will not exceed [REDACTED]. As an additional safety measure we have also mostly capped the proposed minimum price at the local currency equivalent of [REDACTED] except in cases where the competitor's price was still lower, in which we've allowed up to [REDACTED] avg transaction cost.

Wave 2 detailed proposal: next set of countries

Country	Current Min Price (USD)	Current Min Price (Local)	Proposed Min Price (USD)	Var vs. Current Min Price (USD)	Proposed Min Price (Local)	Apple's min price (local)	Transaction Cost % Spend @ Current Min Price	Transaction Cost % Spend @ Proposed Min Price
RO								
CR								
KZ								
BG								
HR								
LB								
PK								
RS								
LK								
JO								
BO								
PY								
BD								
MM								
TZ								
CZ								
DK								
TH								
VN								
HU								

Callouts:

PK: Proposed price is still higher than competitors due to the higher transaction costs

RO&BG: avg transaction costs ██████████

Methodology:

Bucket 1:

The local currency equivalent of the highest of the two:

(1) ██████████ (2) The price at which avg. transaction cost = ██████████

OR

Match competitors as long as transaction cost is not higher than ██████████

Buckets 2 & 3:

Match competitors

Google Play

Next steps

Now

- Get feedback on the proposal → [today](#)
- Incorporate feedback and finalize country list and prices

Q4'20 - H1'21

- Launch the next set of countries and check buyer uplift
- Test in mature markets with [REDACTED] (US)
- Partner with Payments to drive down transaction costs
- Partner with Play BD to reach Developers at scale on sub-dollar adoption (e.g. [Play BD playbook](#))
- Drive sub-dollar adoption through medium touch consultations for pricing guidance

H2'21

- Analyze results and feedback for launched markets, make a recommendation on global expansion

Google Play

appendix

Google Play

[REDACTED]

10/16/2020 - 10/26/2020 at [REDACTED]

NFS (trix)								
			Orders					
Arm	Orders Treatment	Orders Control	gross_difference	percent_difference	percent_difference_stderr	percent_difference_effect_size	percent_difference_lower	percent_difference_upper
arm1								
arm2								
			Spends					
Arm	Spends Treatment	Spends Control	gross_difference	percent_difference	percent_difference_stderr	percent_difference_effect_size	percent_difference_lower	percent_difference_upper
arm1								
arm2								

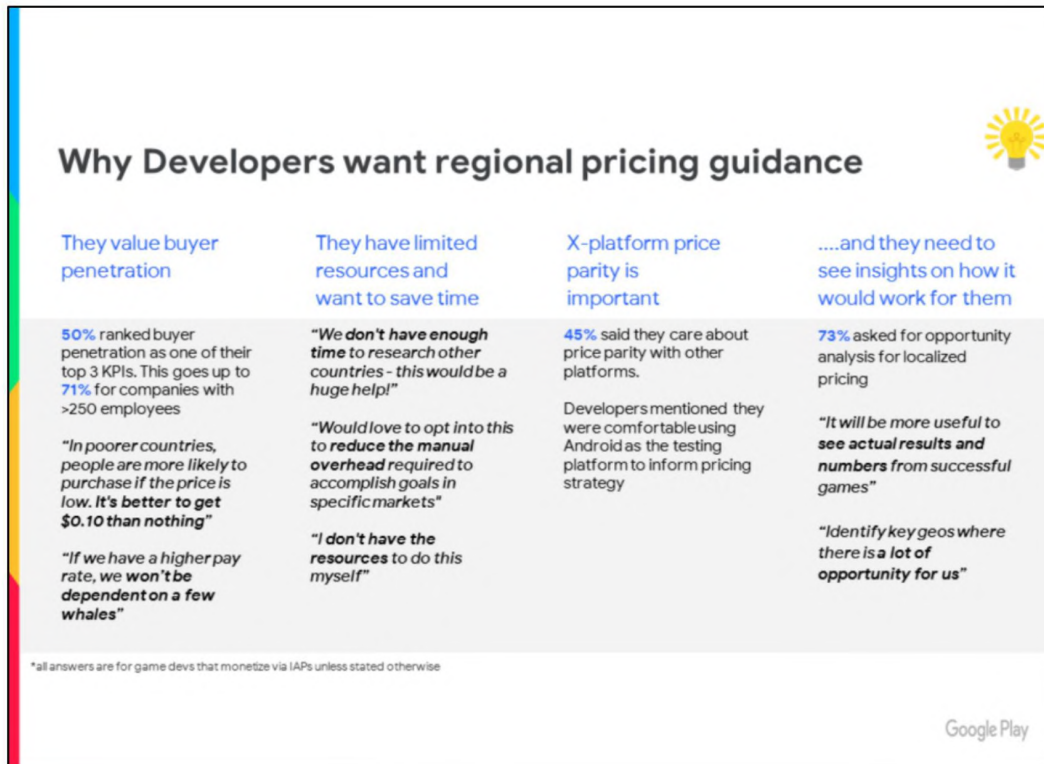
Google Play

[REDACTED]

10/16/2020 - 10/26/2020 at [REDACTED]

			Orders					
Arm	Orders Treatment	Orders Control	gross_difference	percent_difference	percent_difference_stderr	percent_difference_effect_size	percent_difference_lower	percent_difference_upper
arm1	[REDACTED]							
arm2								
			Spends					
Arm	Spends Treatment	Spends Control	gross_difference	percent_difference	percent_difference_stderr	percent_difference_effect_size	percent_difference_lower	percent_difference_upper
arm1	[REDACTED]							
arm2								

Google Play



So why are Developers so interested?

First of all, they care about revenue, of course, but they also really value buyer penetration, and understand that in order to get there they need to be thoughtful about their regional pricing strategies.

50% of Developers who monetize via IAPs ranked buyer penetrations as one of their top 3 KPIs. This goes up to 71% for large companies.

This have limited resources and rely on us to help them save time and reduce the work required from them.

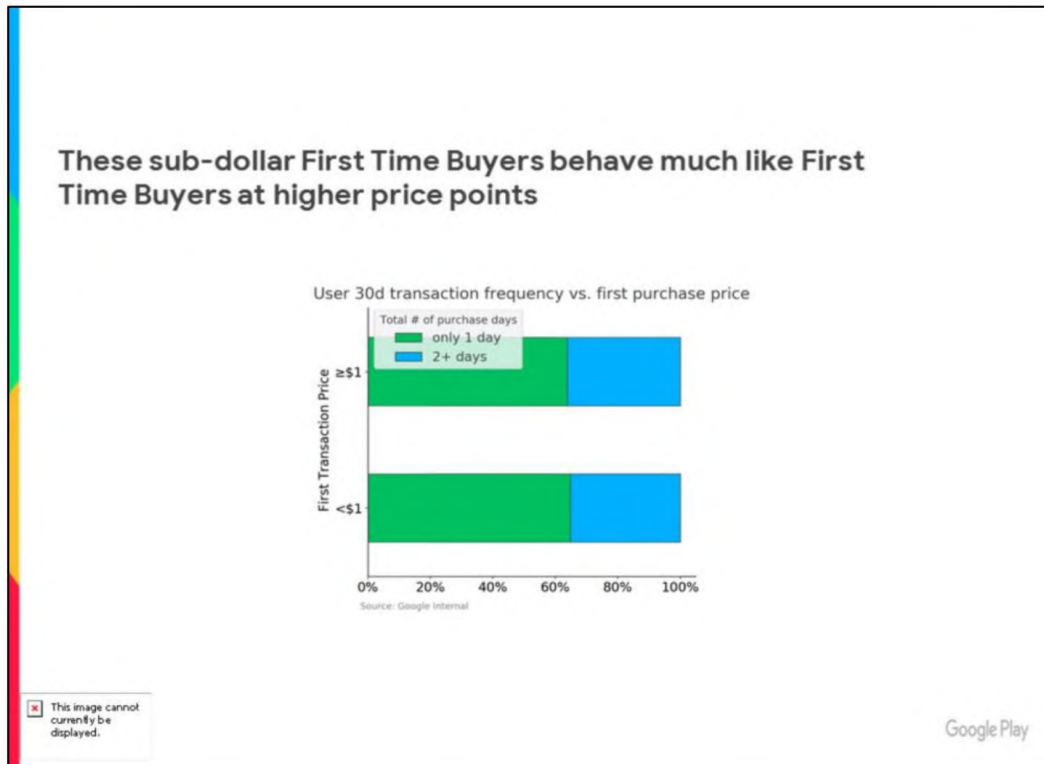
This is of course true for smaller Developers, but even larger ones are often less advanced than we think. We example [REDACTED] wants to learn from us on how to do regional pricing.

They do care about price parity with iOS, but they still was us to provide the guidance, and are also comfortable using Android as the testing platform to inform their broader pricing strategy.

The last point to highlight is that in order to prioritize this they need to see the opportunity sizing, and insights into how that can work for them.

18% of IAP developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)
33% of all developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)
43% of companies with 250+ employees said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)

18% of IAP developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)
33% of all developers said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)
43% of companies with 250+ employees said optimizing for higher buyer penetration is more important (even with short term revenue being neutral/ slightly negative)



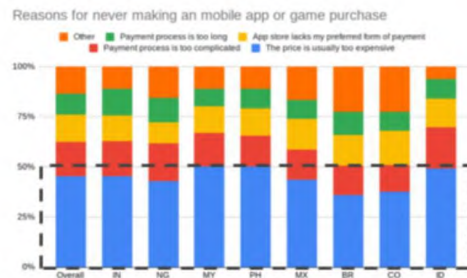
Now I know a lot of you have a hypothesis that sub-dollar pricing will convert the wrong quality of users, so I wanted to show this chart to disprove that

This is a bit of a tricky chart to read, but let me try and explain it

When we look at the behavior of users making their first purchase ~40% of them will make additional purchases in the next 30 days. That is quite promising. When we segment this by the price point of that first purchase we don't see any difference. Users for whom that first purchase was sub-dollar are just as likely to make additional purchases, so these are the same quality users as those making their first purchase at higher price points

User surveys

- SEA users on average have **1/20th** of the purchasing power than those in Top 8 markets.
- Growth in SEA/IN markets are primarily driven by increase in buyers
- Price points that drive revenue are lower in these markets.
- Surveys (1.2) run in South Asia and LATAM markets mention price as the top reason for non purchase.

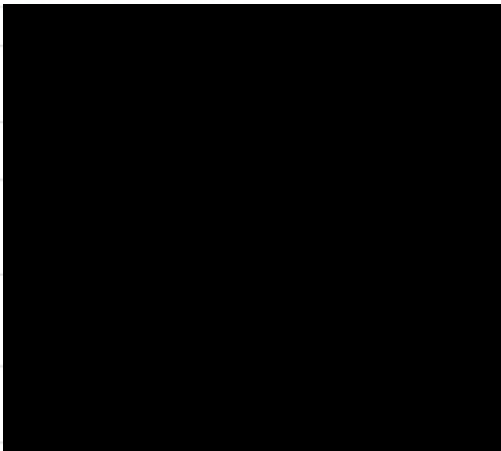


Source : SEA Web Top Ups Research Survey

Google Play

The localized pricing guidance project that we're working on will do just that. How big is the opportunity? if you consider just the users in SEA, one of our fastest growing regions, have ~1/20th the purchasing power as those in top 8 markets. It's not just SEA; if you look at the facts across BRIIM (Brazil, Russia, India, Indonesia and Mexico) and other markets, we see the same themes emerging over and over again where the products being built are not always appropriately priced for users in those markets. It's not just the opportunity, there's also demand from users.

The chart on the right is from a survey that shows the top reasons why users don't make a purchase on mobile. The blue is the top cited reason and it's because offerings are too expensive.

Learnings for Wave 2	
Learning	Implications for wave 2
Positive results overall: order and buyer lift ➡	
Developers often don't have the know-how to price sub-dollar and they need our help ➡	
Our prices could be even lower in emerging markets ➡	
Some Developers are hesitant to adopt if not available in all markets ; some Developers are specifically interested in testing sub-dollar pricing in mature markets (e.g. KakaoTalk in KR, G1 in the US) ➡	
Opportunity to improve margins for sub-dollar transactions by negotiating more favorite terms with Payment partners ➡	
Risk: Sub-dollar pricing implications on Loyalty ➡	

Google Play

Id	Date	Text
1	10/27/2020 17:40:30	sgtm! adding [REDACTED]@google.com to confirm the countries. also would you be able to share the full list of launched + pipeline markets?
1	11/10/2020 05:42:21	[REDACTED]@google.com added this. Does this sound right?
1	11/10/2020 05:42:21	The launch timing of the unlaunched markets is still tentative, but I will update this sheet with the latest information I have: https://docs.google.com/spreadsheets/d/129bzA7wNw-m84cKgQqQFCleJaprfKFpRtw7XpLjY4/edit#gid=0
<div>Google Play</div>		

Sub dollar prices: wave 1

- In 2015 we approved and reduced the minimum prices in 20 emerging markets¹: BR, CL, CO, EG, HU, ID, IN, MX, MY, NG, PE, PH, PL, RU, SA, TH, TR, UA, VN, ZA
- Starting early 2019, Developer adoption took off and we saw a **step change in First Time Buyers (FTB) from sub-dollar price points**:
 - [REDACTED] was an early adopter, and drove the sub-dollar growth as they rose to prominence
 - Other top Developers have also adopted sub-dollar pricing [REDACTED] or started testing sub-dollar [REDACTED]
- These sub-dollar First Time Buyers behave much like First Time Buyers at higher price points²



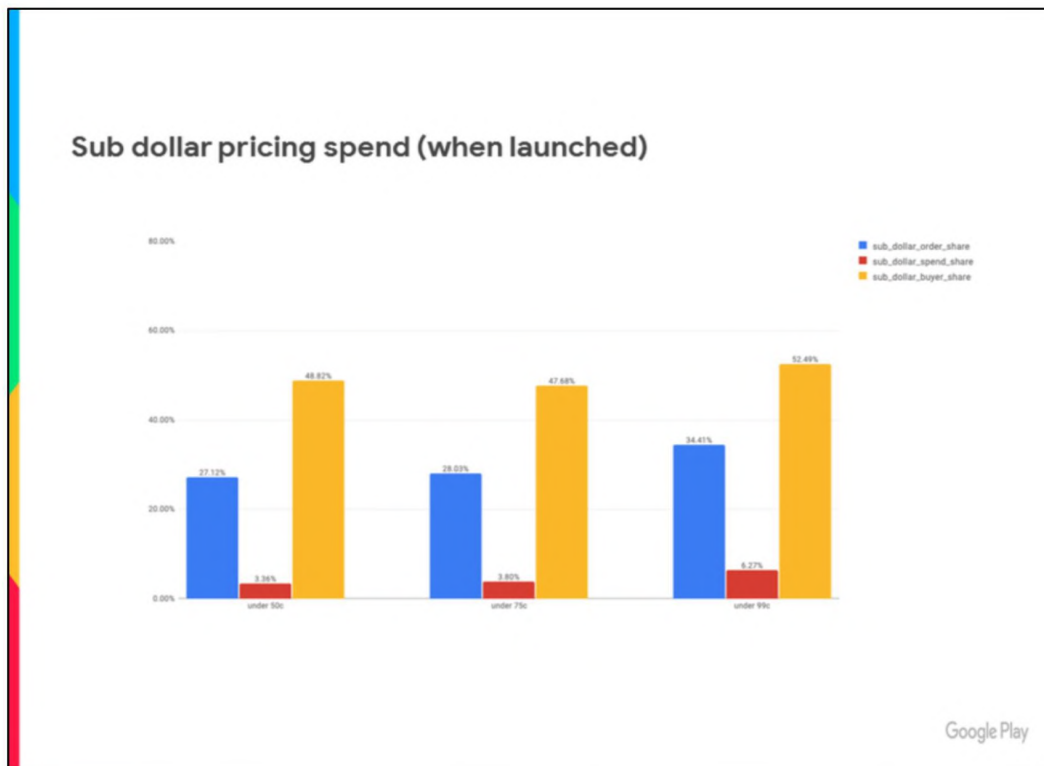
¹ Summary of country selection logic: (1) High transaction volume; (2) high share of low transaction amounts; (3) lower purchasing power (4) some manual filtering based on qualitative input. Logic for new minimum prices: Card Purchase effective transaction cost < 15%

² [Play.BD analysis on sub-dollar in SEA & IN](#)

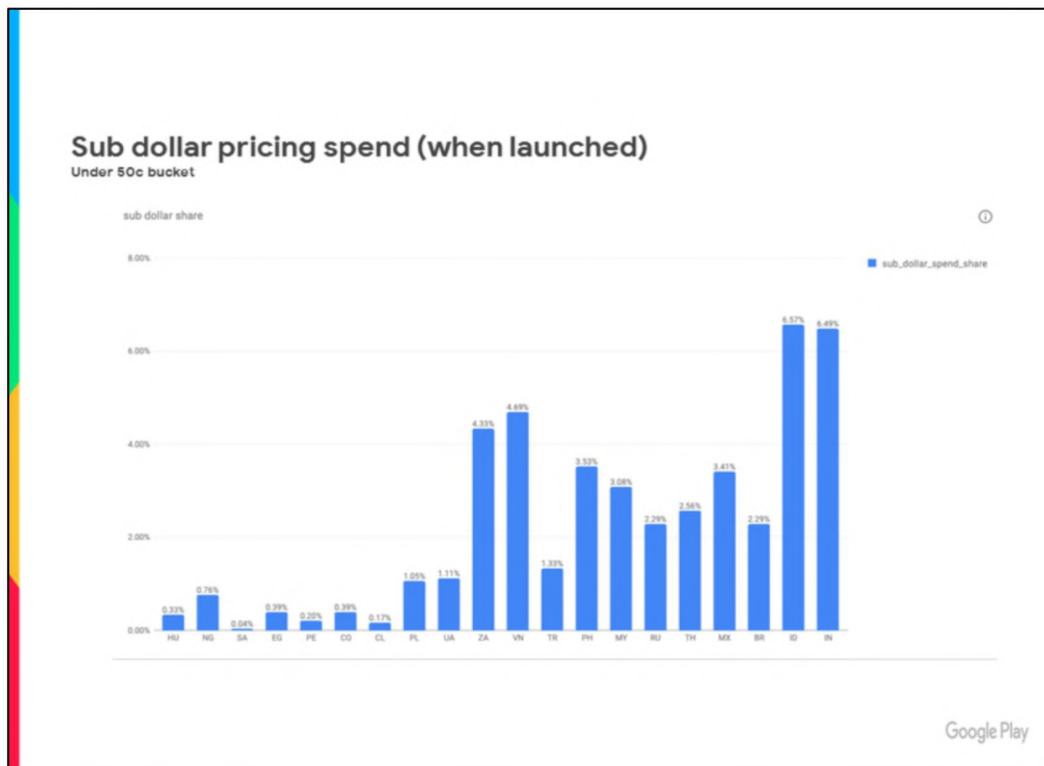
Google Play

I think these slides should come after we talk about what we did in 2019. We can we lowered prices and we a) saw a spike in FTB at sub-dollar b) and they buy at the same rate as others c) we see incremental order lift d) there are other benefits to sub-dollar. Then follow up with but we want to do more - expand it to more countries and then show the proposal.

Id	Date	Text
2	10/27/2020 01:18:59	add the numbers for the mix shift
		



I think these slides should come after we talk about what we did in 2019. We can we lowered prices and we a) saw a spike in FTB at sub-dollar b) and they buy at the same rate as others c) we see incremental order lift d) there are other benefits to sub-dollar. Then follow up with but we want to do more - expand it to more countries and then show the proposal.

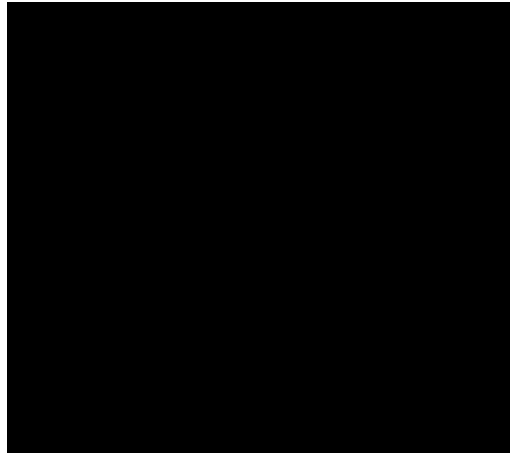


I think these slides should come after we talk about what we did in 2019. We can we lowered prices and we a) saw a spike in FTB at sub-dollar b) and they buy at the same rate as others c) we see incremental order lift d) there are other benefits to sub-dollar. Then follow up with but we want to do more - expand it to more countries and then show the proposal.

Developer care about revenue but they often prioritize buyer penetration when it comes to emerging markets

- **33%** of developers say that for regional markets higher buyer penetration is more important than overall revenue uplift
- This goes up to **43%** for large developers (company size > 250) and **53%** for subscription developers

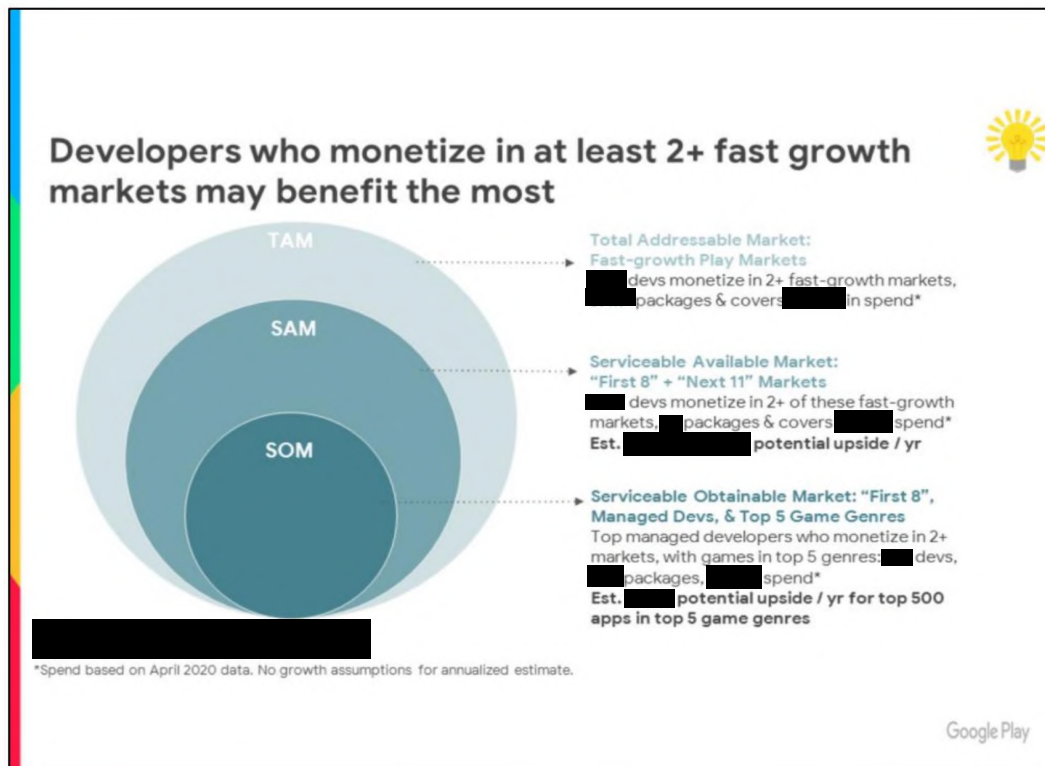
*Based of a



Google Play

Id	Date	Text
3	10/26/2020 16:56:02	look for direct feedback on sub dollar
2	10/26/2020 16:56:02	this dev slide can be appendix -- and can be linked in the benefits slide in slide 16 under dev. saying they love it, since you've already quoted them in that slide.
		

Google Play



We wanted to dig a little deeper into the business case and identify the biggest opportunities and Carolina from my team lead this highlevel opportunity analysis.

First we looked at the total size of the market. We identified over [redacted] developers who monetize in 2+ fast-growth markets, who cover almost [redacted] in annual spend.

Then we prioritized the markets according to factors like spend and growth rates, as well as developer interest, and identified the first 8 markets and longer tail of 11 markets based on additional interest and regional adjacencies. We also picked the top gaming genres.

To estimated the potential upside, we found some hero apps at the genre / country level, and calculated uplift through estimating that these other games in each genre could reach [redacted] of hero app Buyer / DAU %

Reducing the Min prices globally vs. a restricted set of markets			
	Restricted set - next countries		All Countries
Developers	✗	<p>Limits Developer options for consistent pricing (lower Min prices primarily available in emerging markets)</p> <p>Concerns from global Developers like Supercell that worry about interfering with in-game economy</p>	<p>✓ Gives global Developers options to standardize pricing across markets, e.g. \$0.25 starter in all markets</p> <p>Could help developer unlock additional paying users</p>
Play	✓	<p>Less risk of margin dilution or price competition.</p>	<p>✓ Developers adopting sub-dollar can lead to more NPUs & potentially more revenue</p> <p>✓ Removes the need for one-off allowlists for promotional campaigns</p> <p>Having a consistent policy across markets can lower the regulatory risk</p> <p>⚠ If widely adopted, might dilute margin (transaction fees)</p>

Google Play

Current state

Status	Count
Sub-dollar approved and launched (min price <0.5 USD)	20
Sub-dollar due to fx changes (min price 0.5-0.98 USD)	
No sub-dollar*	
* allowlist for temporary promotional campaigns	



Google Play

Id	Date	Text
4	10/27/2020 04:17:35	update
		

Scaling through Console

Bring proven guidance and tools to developers at scale

Play Console is currently working on two projects that will provide a foundation for future pricing insights:

1. [REDACTED]
2. [REDACTED]

In order to prioritize future investment, in Q4 we are working with UXR, PA, and BD to evaluate:

[REDACTED]

Once the above are resolved, we will need to evaluate against other priorities. We expect to have a resource conflict with Play Billing policy, which takes precedent.

Google Play

Wave 2 proposal: phased approach to expand the reduction of the minimum prices

1. **Expand:** enable the next set of countries

- ☐ Expand to [REDACTED] (mostly emerging) to account for purchasing power gaps / match competitors prices: [REDACTED]

- ☐ [REDACTED]

- ☐ [REDACTED]

2. **Activate:** [REDACTED]

- ☐ [REDACTED]

- ☐ [REDACTED]

3. **Go global:** define the approach for a future global expansion

Google Play

WIP

1 Enable the next set of countries:

Countries	Country selection rational	Proposed new Min price

2 Launch globally (pending on the performance)

Benefits of a global launch:

- ✓ Taking a portfolio approach and being consistent across markets
- ✓ Gives global Developers the option to standardize pricing across markets
- ✓ Recent removal of Visa fixed fee for [REDACTED] transactions has improved sub dollar transaction economics:
 - [REDACTED]
 - [REDACTED]

Google Play

Id	Date	Text
6	10/26/2020 23:27:15	██████████@google.com this is something paul f said today about play pass pricing :) does it make sense as a benefit here?
7	10/27/2020 01:25:56	update
8	10/27/2020 01:26:40	next step - work with xfn to launch and activate (e.g. go global)
5	10/27/2020 01:26:55	wave 3
<div>Google Play</div>		

Current state

Permanent Country Change

- We previously implemented reduction of minimum app pricing (min price lowered from ~1USD to 0.1-0.5USD) in 20 markets (BR, CL, CO, EG, HU, ID, IN, MX, MY, NG, PE, PH, PL, RU, SA, TH, TR, UA, VN, ZA) and have seen [positive results](#).
- Due to FX fluctuations the min prices in [29 additional countries](#) is significantly lower than [REDACTED] even though they were never formally approved for sub dollar pricing [REDACTED]
- Wave 1 countries were selected based on the following [logic](#): large number of transactions + higher percentage of small amount transactions + low PPP (with some manual filtering)
- Min price was set as no less than [REDACTED] [of fixed fees](#) (need to confirm exact methodology)

Exceptions/Whitelisting

- No formal exception process. Merch can submit a request to allow [exceptions](#), which is intended for short term promotions. This process isn't formal and has multiple issues (no clear eligibility criteria, ownership or approval, it disables the entire pricing ranges on an entire app level, and it isn't always removed in time) - need to formalize a process.

Google Play

REDACTED VERSION

Exhibit A58 to C. Cramer Declaration

EXHIBIT 14

FILED UNDER SEAL



Program Review: Apps Spend

October, 2015

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Notes on Methodology

Excludes China and Apple first party apps

- Consumer spend on iOS is about ~\$3.5B annually in China (92% is games)
- Apple first party apps deliver an additional ~\$2.6B (biggest apps are Pages, Numbers, and Keynote, biggest markets are US,CN)

Apps considered

- Education category is excluded in this analysis
- Apps that are on Android-only are excluded from the developer and category-level analysis
- Only included devs who have >\$1000/month spend on either Play or iOS
- Numbers have been annualized based on monthly average of last 3 months
- No manual verification of content gaps, data is a combination of Playfull and App Annie so some inaccuracies may persist

Gap definitions

- Content gap = apps are not on Play
- Policy gap = apps are on Play but not monetizing
- Performance gap = apps are on Play and monetizing

Market view

- User market has been used for this analysis

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Executive Summary

Apps spend is underperforming by [REDACTED] when compared to iOS, performance gap is largest driver

- **Market share**
 - Play Apps spend = 15% total apps spend
 - Play Games spend = 43% total games spend
- **Business Diversity**
 - Play Spend is 10%/90% Apps/Games
 - iOS Spend is 33%/66% Apps/Games
- **Total Play Spend Gap for Apps [REDACTED] vs. [REDACTED] for Games**
 - [REDACTED] Content* Gap - driven by Torso & Tail apps in Tools
 - [REDACTED] Policy Gap - driven by Head apps in music, entertainment, and social
 - [REDACTED] Performance Gap - driven by Head across all categories
 - Note: There are also a few apps that outperform on Play [REDACTED] from apps like [REDACTED] (\$[REDACTED], [REDACTED] etc.)
- **Market Impact: Global Apps Spend on iOS dominated by NA & EMEA, maps to largest Play gaps**
- **Tablet Impact: iPad Accounts for 25% of the gap**

Proposals to address the Gaps:

- Grow Scaled BD to close persistent Apps content gaps
- Enforce policies and require use of Play Billing for Apps IAP and Subscription services
- Direct & Scaled BD drive growth opportunities using data-driven tools to identify highest potential opportunities (Jarvis)

*Content gaps reflect apps that are not on Play - these may become Policy gaps if they were to build for the platform

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Surplus apps outperform iOS by [REDACTED] annually. [REDACTED] contributes [REDACTED] out of that [REDACTED]...
next one is [REDACTED] at [REDACTED]



[redacted] is [redacted] of APAC play apps spend. excluding [redacted] play's markets share in APAC drops from [redacted] to [redacted]

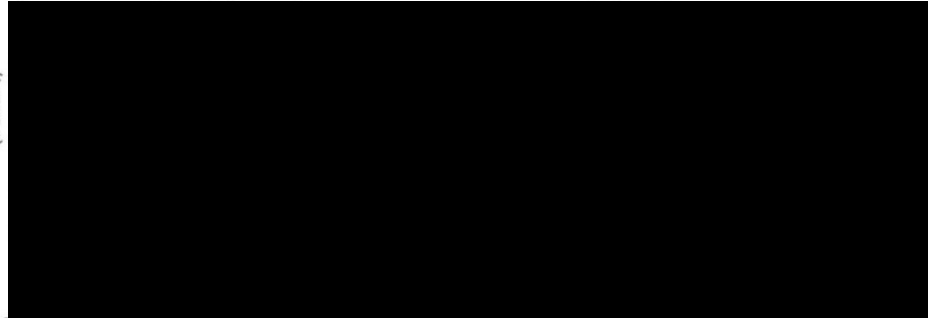
Others = [redacted] LATAM

All App Categories contribute to the Spend gap

Tools has the biggest gap overall

Gap diagnosis

Annual spend
(in billion \$)



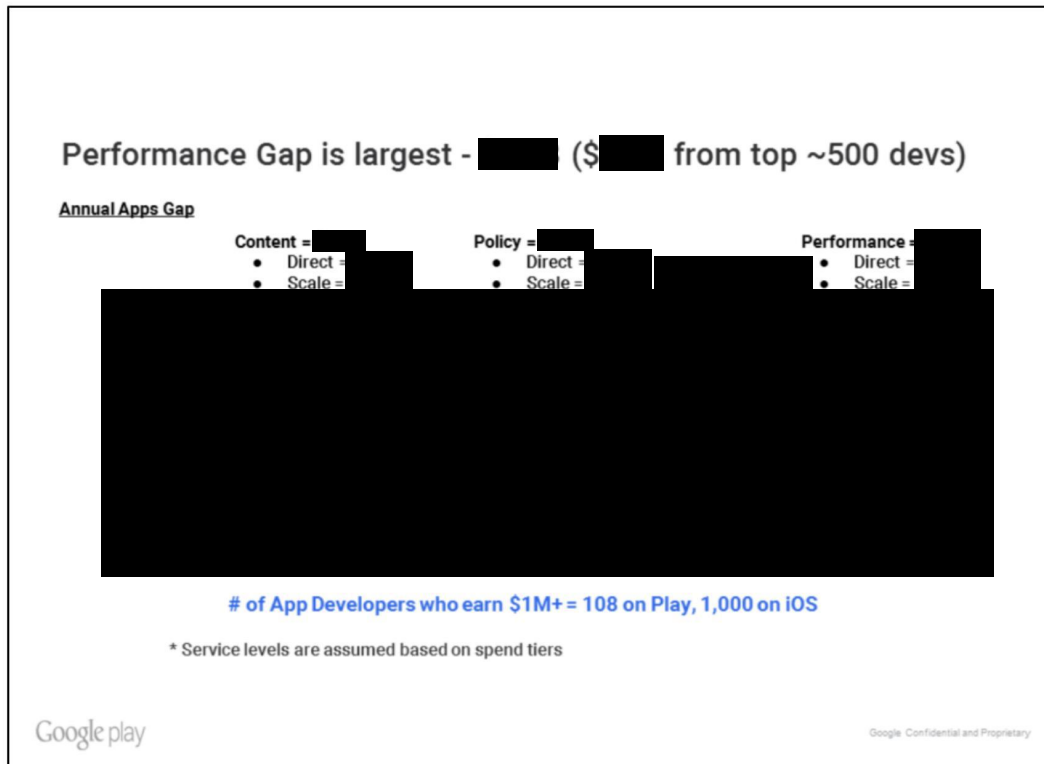
Content Gap: Largest in Tools where apps are designed to be unique to each platform

Policy Gap: Largest in Social & Music where Music & Dating apps choose not to implement Play billing

Performance Gap: Significant across all categories

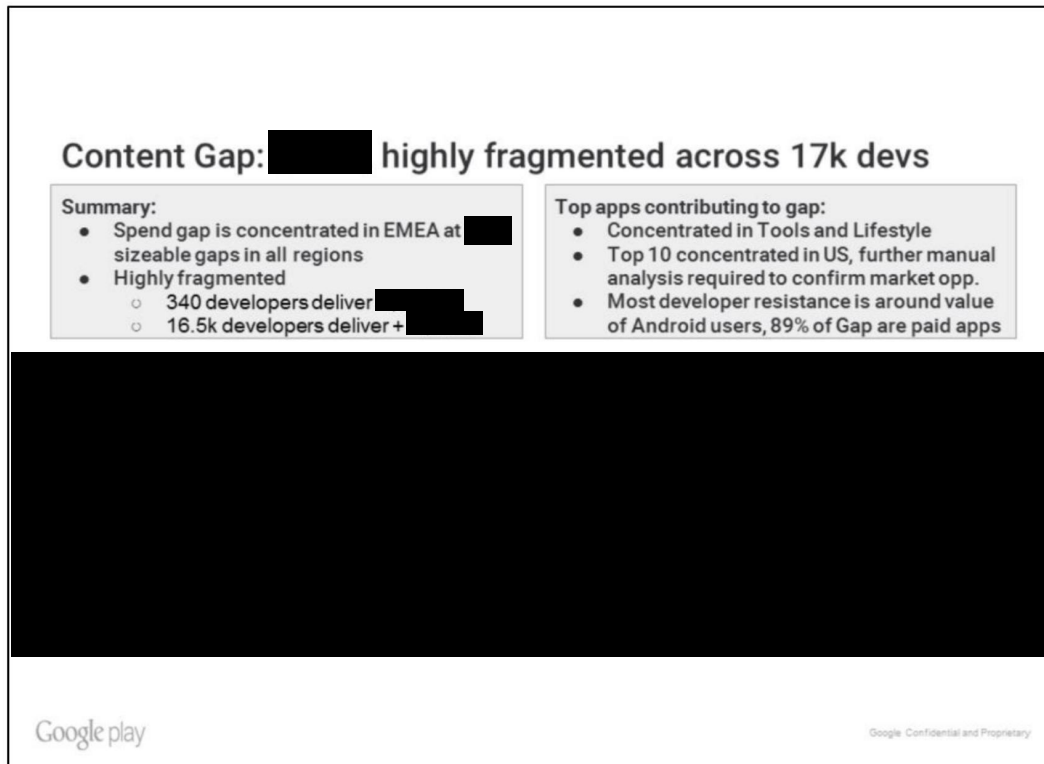
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Content = 340 missing developers deliver ~[REDACTED], 16.5k missing developers deliver ~[REDACTED]
 → Torso & Tail
 Policy = 107 developers deliver ~\$[REDACTED], 2.3k developers deliver [REDACTED] → Head
 Performance = 36 developers deliver ~\$[REDACTED] the next 450 deliver [REDACTED] → Head

108 apps devs make 1M+ on play
 1000 devs make 1M+ on iOS



Of the top 10 missing spend apps, xx are based in yy market
However, there are 300+ more developers making over \$1M on iOS - need to manually map their markets

- [REDACTED] -- Pilot flight planning and services, subscription apps
- [REDACTED] - office suite, coming to Android, paid apps
- [REDACTED] - navigation, paid app
- [REDACTED] - history & education, paid app
- [REDACTED] - social network boosting, IAP packs for likes, followers
- [REDACTED] - GPS, paid app
- [REDACTED] - office suite, paid app
- [REDACTED] - services marketplace, IAP credit purchasing from service providers
- [REDACTED] - chat app, IAP
- [REDACTED] - recently banned? music streamer and downloader, paid app

Id	Date	Text
1	10/28/2015 17:20:22	_Marked as resolved_
2	10/28/2015 17:20:31	_Re-opened_
3	10/28/2015 17:23:31	Sure: There are lots of tool devs (e.g. ClockworkMod, CyanogenMod) that build for custom ROMS, which are, inherently, an Android-only tool. Also cleaners, boosters & AntiVirus (e.g. from Liquidum, AVG Mobile) are Android-only
1	10/28/2015 19:18:31	How about launcher and widget-type Tools devs? Sent from Android device.
2	10/28/2015 19:25:38	We are looking for areas that are not applicable to android only
1	10/28/2015 20:40:51	+ [REDACTED]@google.com + [REDACTED]@google.com - do you have any examples of developers who build tools for only android platform and not for iOS..
4	10/28/2015 20:40:51	I think you and BV might actually be able to pull this more easily systematically than I. The main tool devs that I work with are building tools that leverage Android-only functionality or build on both platforms.
<div>Google play</div> <div>Google Confidential and Proprietary</div>		

Policy Gap - [REDACTED] with over 50% in Social & music

Summary:

- Spend gap concentrated in US & EMEA at [REDACTED] and Social & Music at [REDACTED]
- Business needs drive decisions
 - Existing billing infrastructure lowers value of Play solution
 - Missing features prevent adoption

Top apps contributing to gap:

- Over 50% of gap is contained in Social & Music - 10 of 12 developers making \$10M+ on iOS and [REDACTED] is [REDACTED] of total gap
- Another 95 developers make over \$1M on iOS

Google play

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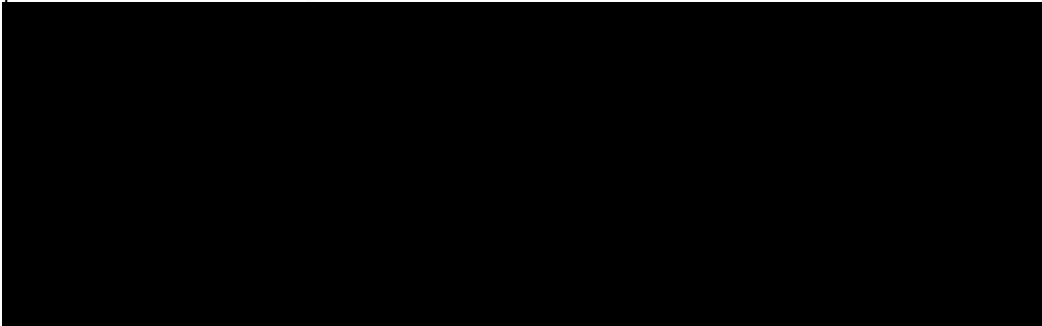
Performance Gap - [REDACTED] [REDACTED] from top ~500 devs

Summary:

- Spend gap concentrated in EMEA at [REDACTED] and US at [REDACTED]
- Lifestyle represents [REDACTED] % of developers making \$[REDACTED]+ and [REDACTED] % making \$[REDACTED]+
- Contributing factors are lack of sim ship, platform performance constraints (music)

Top apps contributing to gap:

- Very good relationships and strong investment from top apps
- Consistent underperformance with respect to conversion rates, retention, etc.



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Launch delay
Platform performance constraints
Missing product features

Add developer market contribution

Different BD approaches required for each Gap

Content = [REDACTED]
 • Direct = [REDACTED]
 • Scale = [REDACTED]

Challenge: Content Gap is highly fragmented across markets and categories, largely with Torso and Tail developers. It's unclear that Android versions would deliver comparable spend benefit.

Proposal: Staff Scaled BD to close fragmented Apps content gaps

Year 1 Spend Estimate: [REDACTED]
 (Close 10% of Gap + 15% Performance handicap)

Policy = [REDACTED]
 • Direct = [REDACTED]
 • Scale = [REDACTED]

Challenge: Policy Gap is highly concentrated in markets (NA, EMEA) and categories (Social, Music). There are real short term spend implications but more concerning is the long term impact on growing our active buyer base.

Proposal: Enforce policies and require use of Play Billing for Apps IAP and Subscription services

Year 1 Spend Estimate: [REDACTED]
 (15% Performance of Total)

Performance = [REDACTED]
 • Direct = [REDACTED]
 • Scale = [REDACTED]



Challenge: Performance Gap is highly fragmented across markets, categories, and developer needs. Requires a more robust understanding of business drivers and additional BD resources.

Proposal: Direct & Scaled BD can drive growth opportunities using data-driven tools to identify highest potential opportunities (Jarvis)

Year 1 Spend Estimate: [REDACTED]
 (Increase Play Performance by 50%)

Google play

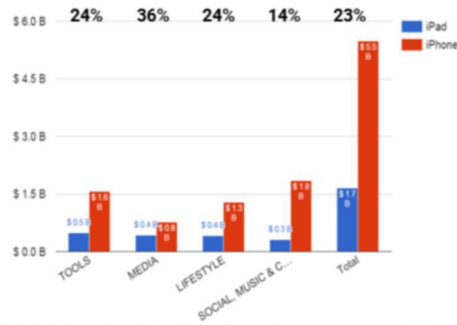
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Id	Date	Text
1	10/26/2015 17:50:13	Yes, they are spend #s, have updated. The slide is saying that using BD levers (and policy) that we believe [REDACTED] is addressable in the first year.
2	10/26/2015 17:54:19	<p>The largest difference in how Apple treats apps (compared to how they treat games) is visibility in marketing campaigns.</p> <p>We're refreshing app categories to improve discovery, in some cases these will more closely align with Apples.</p> <p>Overall, the intent was to focus on where the apps business is today with respect to consumer spend (slides 1-10) and tee up some early ideas on BD solutions, not a comprehensive set across all functional activities. We can remove these if they are distracting for today's discussion.</p>
1	10/26/2015 20:53:14	I assume these numbers are spend and not revenue. Is this slide saying that of the [REDACTED] gap, we believe only [REDACTED] is addressable?
1	10/26/2015 20:53:14	<p>Jamie -</p> <p>I think there is a more detailed analysis we could do to see what a reasonable upside estimate is on closing the performance gap. However, it would be based on a lot of assumptions that I'm not sure we could validate until we actually start doing....rather than analyzing.</p>
2	10/26/2015 20:54:22	These proposals don't mention product opportunities. Does the App Store treat app categories differently than we do in Play? Does Apple do anything in its store or other parts of its UI to better promote and encourage the use of apps?
2	10/26/2015 20:54:22	[REDACTED] is an obvious product initiative that could support closing performance gaps.
<div>   </div>		

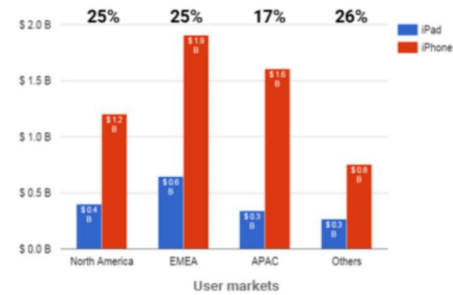
Tablet performance: iPad accounts for 25% of iOS Gap

iPad Spend is **23x** Android Tablet....but only accounts for **25%** of iOS Spend Gap

23% apps spend on iOS comes from iPad
(8% of tablet apps spend on Play comes from tablets)



EMEA and NA have 25% apps spend on iOS from iPad
Regional breakdown of tablet apps spend on Play is consistent



in 2015 140M android tablets have been sold vs 54M iPads (Source: IDC) - per unit underperformance is 60X

Google play

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Id	Date	Text
3	10/26/2015 18:36:35	Is there a product opportunity to make Android tablets perform better in this area? If so, what would it be?
3	10/26/2015 18:36:35	The gap is so large it warrants a deeper look overall.
<div>Google play</div> <div>Google Confidential and Proprietary</div>		

Summary

Current state of apps business

- Apps are underperforming by [REDACTED] when compared to iOS (not including China or Apple apps)
- Project [REDACTED] is addressable in the near term through targeted app acquisition, tighter policy enforcement, and proactive consultation
- There are some bright spots
 - Many top performers are using Play billing, we can contribute to optimizing performance
 - Apps are delivering as many buyers as games (with lower LTVs), more work to determine which markets and which categories are delivering active buyers and how to grow contribution

BD Levers

- Staff Scaled BD to close Apps content gaps
- Enforce policies and require use of Play Billing for Apps IAP and Subscription services
- Direct & Scaled BD can drive greater growth using data-driven tools to identify highest potential opportunities (Jarvis)

Google play

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Appendix

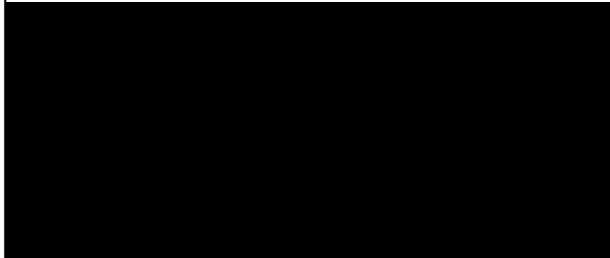
Google play

Google Confidential and Proprietary

Apps Buyers v Game Buyers

Insight: Even with this Spend gap today, almost 44% of new Play buyers come from Apps. Dominated by [REDACTED], [REDACTED] & [REDACTED]. Less than 20% buy both Apps & Games.

Hypothesis: There is untapped potential in app specific buyer retention initiatives



Google play

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REDACTED VERSION

Exhibit A59 to C. Cramer Declaration

EXHIBIT 15

FILED UNDER SEAL



Google Play Developer Marketing

2016 Plan

Patricia Correa & team: Adriana Puchianu, Amelie Jammes, Anuj Gulati, Dominic Elliott, Dorothy Kelly, Francesca Di Felice, Jijia Huang, Kacey Fahey, Laura Della Torre, Laura Willis, Leticia Lago, Lily Sheringham, Nori Fujii, Nuno Santos, Robin McClelland

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Google Play Developer Positioning

Google Play empowers developers to create apps and games that delight users,
and grow successful businesses anywhere in the world,
through app excellence, innovative distribution and business optimization.

App Excellence

It all begins with quality.
Our end-to-end suite of world-class
Google products and tools can help
you take your app/game to the next
level.

Innovative Distribution

Reach more engaged people in more
places with Google Play and Android.
Go beyond smartphones and tablets
to wearables, auto, work, school and
home.

Business Optimization

Review and optimize every aspect of
your app/game business with our
intelligent tools and dashboards.

key Play themes

Google

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Dev Marketing Mission

Design and drive the content, channels, campaigns and programs across developer segments and markets, to empower all developers to succeed on Google Play & Android

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Social engagement rate = number of engagements (likes/retweets/favorites/etc) divided by total impressions. Benchmark for the whole blog is 0.1.

Events: APAC 133, EMEA, 50, AMERICAS, 36 - reach: APAC: 240k, EMEA, 3k, AMERICAS, 8.5k

Id	Date	Text
1	02/16/2018 22:11:10	<div><div>[REDACTED]@google.com Here's the stat. Also found in this deck.</div><div>https://docs.google.com/presentation/d/17hXxBZss6r70tc8yQRsSZG-d7nR8w8a5N79BMPoBvbk/edit#slide=id.g6179506b9_3284 _Assigned to Dorothy Kelly_</div></div>



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Perception is improving...

For Google Play, external [business] perception is positive and improving

"When it comes to app store downloads, Google Play is king." – Venture Beat

"Google Play is becoming serious business." – Financial Times

"Google Play Gaining Ground Against Apple, As Android App Downloads Outnumber iOS 2-to-1" – Marketing Land

"It looks as though Play is growing faster than iOS and might overtake it this year." – Benedict Evans

Developer perception is also changing, although more work needs to be done

"While the conventional wisdom is to build first for iOS, if we had to do it all over again, I would launch on Android first, or at the same time as iOS. More than half of The Hunt's downloads are to Android devices."

– Tim Weingarten, CEO, The Hunt

*"Google play a big role because in certain territories, **without Google [Play], we cannot imagine our distribution**, and it's really nice to see users worldwide playing with our apps and having fun."*

– Iza Login, Deputy CEO & Co-founder, Outfit7


*"We did the math. We looked at whether the upside in terms of **incremental subscriptions would more than offset the 30% we pay to Google, and in fact it does.**"*

– Paul Smurl, GM, Core Digital Products, The New York Times

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Developers aspire to become the next Success Story



Marlon Jones · 1 day ago

Hopefully I can make it into one of these videos one day! :) anyone know what song is playing in the background?

Reply · 1 · 0

Everone Graham · 10 months ago

I really love this :)

Reply · 1 · 0

Gulam.M Chandiwala · 1 day ago

Awsome, hope someday I make into the success stories :)

Reply · 1 · 0

epiclapser · 2 months ago

Epic stuff so inspiring!

Reply · 1 · 0

Tomek Tendera · 2 months ago

Wow, very inspiring. And now I want to learn building apps for Android even more than before :)

Reply · 1 · 0

ITechUOutGuy · 3 months ago

we all should be inspired. make the world better by what we do for it.

Reply · 1 · 0

Erik Mejia · 6 months ago

Someday I'll make a game with that kind of revenue.

Reply · 1 · 0

Biagio Plantamura · 10 months ago

This is so inspiring!

Reply · 1 · 0

xSaboTV · 1 month ago

Can't wait till I start developing android apps #soon

Reply · 4 · 0

MrRooney182 · 1 day ago

Wow.. These success stories really drives me to work harder on my android development skills

Reply · 9 · 0

aureliendouandi · 1 month ago

Congratulation!!! You inspire other young people. Keep it up!

Reply · 1 · 0

Nevin Chen · 10 months ago (edited)

Yes, that's also why I love being an Android developer. You have control in your life and work.

Reply · 1 · 0

BlackTop · 10 months ago (edited)

holy fudge, I wish I could be like this, ditch my current job...live in a town doing what I love, no pressure or restriction...BTW SmartLauncher is one of those apps that I wouldn't even pirate...really love it

Reply · 1 · 0

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...but challenges remain

<p>Consumers spent over \$13B on Play apps and games in 2015, 32% YoY growth</p> <p>However, developer performance remains suboptimal with a \$6.4B revenue gap, and XXXM install gap.</p>	<p>Athena, launched in July, drives all reward decisions. Scale partner scores grew from 1.8 to 2.4.</p> <p>Data missing (sim ship, Android studio use) and refinement required for differing market dynamics. Direct score remains flat at 2.9.</p>	<p>Dev Marketing grew from 5 to 11 pmms (+6 TVCs)</p> <p>But the Business Development team grew to 100+ which exponentially stretches dev marketing resources. There are also 2 new developer marketing teams at Google (Ads and Platforms) who we need to more closely align with.</p>
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iPhone is a metonymy.

Green Bubbles are not cool.

Don't know vs social exclusion.

See here for where we don't have athena data:

https://docs.google.com/spreadsheets/d/12eTIKxHpARwOyqVU5DdJtDw5Yg0whD_j6ZnI7LL-QAI/edit#gid=2073440896

Learnings & Insights

In 2015 we learned that...

- Too many product launches = noise to developers
- Developers engage more with category-specific content and with localized content
- Anything we do online is still difficult (site, blog, etc.)
- Outbound comms in OK, but we need a better way to help developers find information they are seeking (inbound)
- We have good reach but need to track the impact of initiatives

So in 2016 we will...

- Tier announcements and focus on fewer more impactful product launches
- Create category-specific content and targeted marketing initiatives
- Go mobile
- Improve onboarding flow on DAC, go mobile and leverage more xfn and xpa channels
- Work more closely to StratOps and add Dev Insights functions to focus on higher impact initiatives and measure results

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2016 Play PA Goals

- Extend the reach of Play beyond the borders of the store, enabling **10x growth** in contextual discovery while refocusing the store destination on richer, deeper, more premium experiences in **key verticals and user segments**
- Create the best development, distribution, and business management platform in the world, delivering **measurable strategic value** to our developers while driving a **higher quality app catalog**
- **Bring the Next Billion apps users onto Play**, driving reach and engagement through locally-tailored products, with specific emphasis on China and India

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2016 Play Apps & Games BD Goals

Developer Performance

Close performance gap with iOS
by nn% of revenues and mm% of
installs

Catalog Quality

NN% of managed developers
most popular apps have an
"Excellent" Athena Score

Google Outcomes

Establish baseline DSAT and
improve Developer Satisfaction
by nn%

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Product Launches H1 2016

Develop great apps

Zapp dynamic code hosting
Cloud Test Lab
X-company work on quality (inc. Play crash metrics)
Release dashboard

Grow and engage users

Family library
Sidewinder
Westinghouse
Review analysis
Play Store: discovery episodes, personas, details page
Firebase integration
Developer Console mobile app
Find beta users
Games
Project Atlas & apps on a diet
Verticals

Earn more money

Project Mudra / Local FOPs in India
Targeted promotions
Pay to remove ads
Family FOP

Yes, this is a big list! We'll pare it down over the coming months.

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Focus areas: Apps, Games & Kids BD

	Apps	Games	Kids
Key verticals	<ul style="list-style-type: none"> - Entertainment - News - Sports - Shopping - Dating 	<ul style="list-style-type: none"> - Mobile Majors - AAA - Indies & Influencers 	<ul style="list-style-type: none"> - Families
Top-level strategy	<ul style="list-style-type: none"> - Category expertise: drive actionable insights - Developer performance: close gap through growth consulting and programs - Catalog quality: improve Athena score 	<ul style="list-style-type: none"> - Developer performance: close gap through growth consulting and programs - Global coordination of games segments (Majors, AAA, Indies, Scale) - Develop high potential focused projects (Live Ops, eSports, VR) 	<ul style="list-style-type: none"> - Category expertise: drive actionable insights - Developer performance: close gap through growth consulting and programs - Catalog quality: improve Athena score
Key deliverables	<ul style="list-style-type: none"> - (CE) Thought leadership initiatives e.g. VC Newsletter, PR Op-eds, Speaking opps, best practices, category events, case studies, etc. - (DP) Go Global, Play Billing Adoption, Co-marketing campaigns - (CQ) Playtime, EM Quality, Go Local, Start-up/VC, Agencies & Dev Shops, Android Platforms 	<ul style="list-style-type: none"> - Scale category expertise across Play and Google - Events & Live Ops - Hero programs: AAA and Indies & Influencers - Co-marketing campaigns 	<ul style="list-style-type: none"> - (DP) White Glove program - (CQ) 3x Family category events - (ALL) Family Playbook rollout - Case studies - (CE) Industry events: Bologna Book Fair and Casual Connect - Family Library launch

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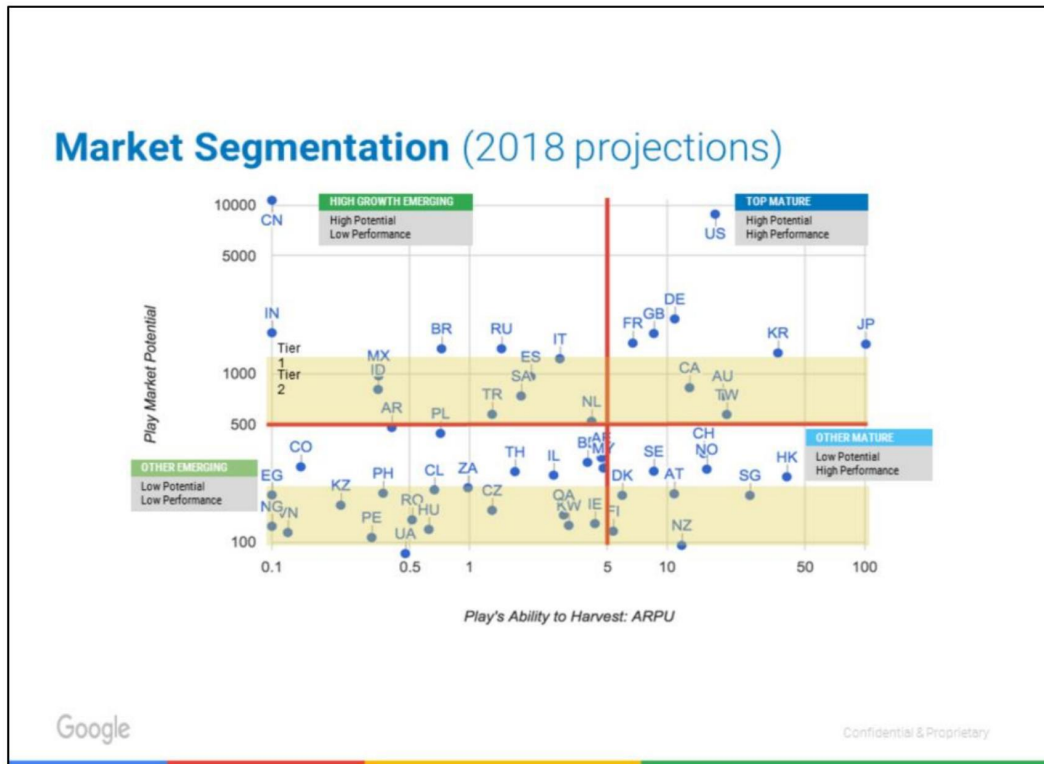
Id	Date	Text
1	03/02/2016 04:14:10	[REDACTED]@google.com I filled out top-level strategy, how would you like to fill out Key Deliverables?



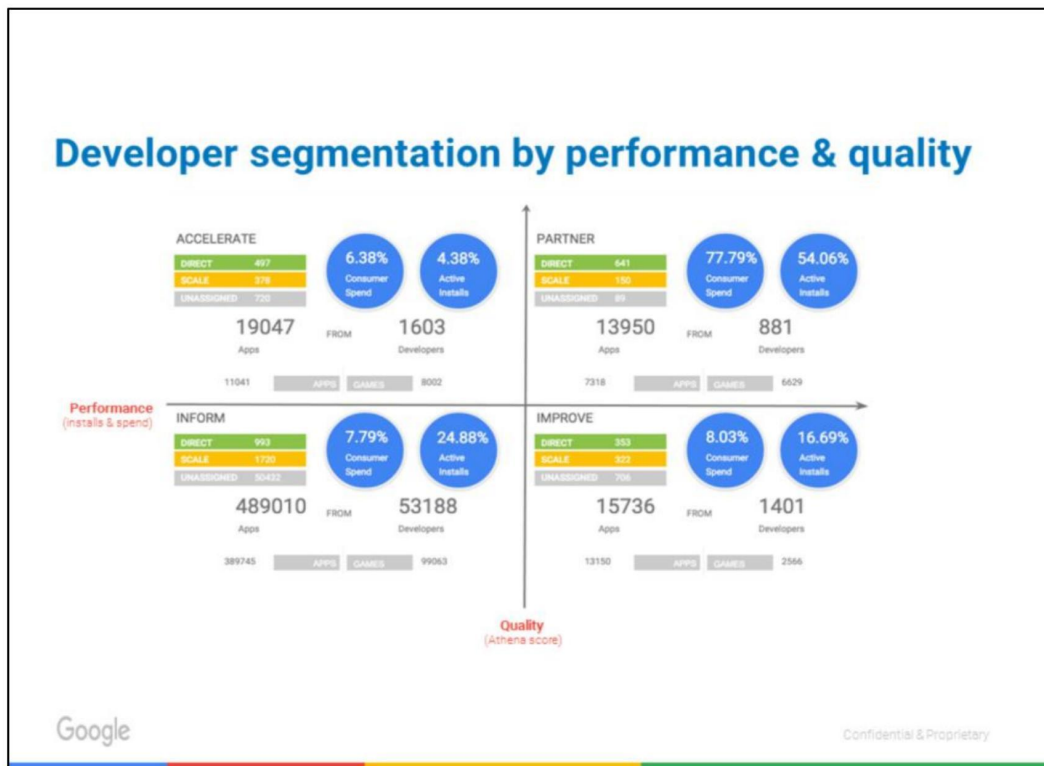
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- High value gamers push
- Casual gaming push: improve frequency of play and spend
- High-quality apps showcase -- to combat perception that Apple has better quality apps
- Google Play for Families push



Play's Market Potential: GDP x Smartphone Penetration x Android Share
Play's Ability to Harvest Market Potential: Play's Average Revenue per User (ARPU)



Segments 1-10

2016 Play Dev Marketing

	Goal	Strategy	Example deliverables	Metrics
Developer Performance	Equip developers with the content, tools and programs that improve business performance.	<ul style="list-style-type: none"> - Focus on launch and awareness for performance driving features - Deliver performance best practices through category/geo targeted events, programs, Secrets app and success stories 	<ul style="list-style-type: none"> - Category-focused events and workshops - Secrets App - Android Developer Stories - Co-marketing program 	- a
Catalog Quality	Equip developers with content, tools, programs that improve quality and inspire devs to invest in Android and Play.	<ul style="list-style-type: none"> - Launch and build awareness for quality-driving features - Deliver category- or geo-specific insights and content - Incentivize developers to up-level app/game quality through recognition programs and co-marketing 	<ul style="list-style-type: none"> - Playbooks & Android Developer Stories - Category-focused events and workshops - Secrets App - Dev Recognition: EC 2.0, TD 3.0, Play Awards - Co-marketing program 	- b
Google Outcomes	Deepen our understanding of developers, everywhere and make sure they are happy with Play. Measure impact: RAPS.	<ul style="list-style-type: none"> - Deepen our understanding of developers through the developer insights program. - Determine aspirational developer perception and deliver initiatives that will take us there. - Measure DSAT and deliver initiatives to improve it. 	<ul style="list-style-type: none"> - Developer Insights Program - Developer Perception Study 	- c

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How will we measure impact?

Reach

- Sustain existing total reach across channels (~1M devs)
- 100% coverage of Direct and Scale developers

Awareness

- XX% developers aware (aided) of key features/ programs
- XX% QoQ growth in aided/ unaided awareness of key features/ programs

Perception

- Get an accurate read on Google Play brand perception among developers

Satisfaction

- Establish baseline DSAT for Play org
- Quarterly Play BD DSAT >XX% and growth of XX% QoQ

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Id	Date	Text
1	02/22/2016 21:23:22	[REDACTED]@google.com do you have any updates for these numbers?
<div>Google</div> <div>Confidential & Proprietary</div>		

Team plans

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APAC

2015 learnings & insights

- Activated local channels
 - 130 events to reach 240K devs
 - Newsletter in 5 local languages to reach 32K devs
- Supported managed partners
 - YonY +41% installs, +42% consumer spending
- However, not well connected with devs beyond managed partners

H1 2016 priorities

- Focus on a few with discipline
- Measure the result
- Support innovations in games
- Crack the code for growth
 - App (non-game)
 - Next 1B
 - Sidewinder

Targets	Programs	Key deliverables	Anticipated impact
Managed partners	<ul style="list-style-type: none"> - Playtime (VIP events) - App category growth - Go-global - Co-marketing - eLearning - B2B monetization from codes 	<ul style="list-style-type: none"> - JP/KR/HK or CN/IN/SG (SEA) - Partner Days, case study videos, MDF support - Play Connect, Go-global playbook, co-marketing priority - Co-marketing dev club, MDF - JP/CN/KR - IN 	<ul style="list-style-type: none"> Reach Awareness Perception Satisfaction
Jwaneng 1-9 partners	<ul style="list-style-type: none"> - Contact completeness - Google for Mobile (scaled events) - Sidewinder - Project 200 (indie game devs) - Study group 	<ul style="list-style-type: none"> - Outbound calls, acquisition from other teams, BD input supports - JP/KR/CN/IN/ID - L2 launch & roadshow, SW device seeding - JP/KR/CN/IN/ID - Indie game events, device test lab, mktg supports - Pilot in JP 	
All devs	<ul style="list-style-type: none"> - Evergreen - Udacity 	<ul style="list-style-type: none"> - Local channel expansions (e.g. YouTube [REDACTED]) - TBD 	
Not on Play	<ul style="list-style-type: none"> - Dev agency - IOS conversion 	<ul style="list-style-type: none"> - TBD 	

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EMEA

2015 learnings & insights

- Better support for more managed partners
 - Playtime, category-focused events, workshops
 - Multiple co-marketing opps
- However, not well connected with devs beyond managed partners

H1 2016 priorities

- Continue and deepen engagement with managed partners
- Reach more developers, also in emerging markets
- Focus on impactful co-marketing opportunities
- Streamline execution through better processes and toolkits
- Measure results

Targets	Programs	Key deliverables	Anticipated impact
Managed partners	<ul style="list-style-type: none"> - Playtime - App category growth - Go local - Co-marketing 	<ul style="list-style-type: none"> - 3-5 Playtime events - Category partner days & topic-specific workshops - Play Connect - Weekly deals, Games Festival [REDACTED] DCB, other pilots & campaigns, (MDF) 	<ul style="list-style-type: none"> Reach Awareness Perception Satisfaction
Jwaneng 1-9 partners	<ul style="list-style-type: none"> - News publishers 	<ul style="list-style-type: none"> - News best practices 	
All devs	<ul style="list-style-type: none"> - Industry events - Case studies - Playtime online - Play GDE - Emerging markets 	<ul style="list-style-type: none"> - Gamescom, Slush & others - Written & videos - Playtime videos produced, published & promoted - Launch & grow Play GDE program [REDACTED] pilot, xfn events 	
Not on Play	<ul style="list-style-type: none"> - Dev agency - iOS conversion 	<ul style="list-style-type: none"> - TBD 	

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Latin America			
2015 learnings & insights		H1 2016 priorities	
1. Latin America direct developers are eager to grow and willing to learn 2. Building a locally relevant catalog and driving quality is top priority 3. Local exemplars can inspire developers 4. As an emerging market, the strategy needs differ from US		1. Quantitatively measure RAPS and fill gaps in awareness 2. Focus on marketing to developers to uplevel quality 3. Find and promote local exemplars 4. Separate strategy, budget & plan	
Targets	Programs	Key deliverables	Anticipated impact
Managed partners	- Playtime - Go local/Makeover	- Playtime BR - MX event - Set RAPS baseline - Support & Engage at Dev Rel events - Locally relevant pre-approved titles	Awareness Perception Satisfaction
Jwaneng 1-9 partners	- Industry events - Case studies	- Speaker desk support for LATAM, dedicated list - Case studies (written)	Reach Satisfaction
All devs	- Industry events - Case studies	- Speaker desk support for LATAM, dedicated list - Case studies (written)	Reach Awareness
Not on Play	- Industry events - Case studies	- Speaker desk support for LATAM, dedicated list - Case studies (written)	Reach Awareness

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+ Secrets guide localized into PT-BR, owned by [REDACTED]

Id	Date	Text
1	01/29/2016 21:50:45	[REDACTED]@google.com this is based on current HC & budget.
2	01/29/2016 21:50:45	And do we want to mention the plan on addressing #4 here?
<div>Google</div> <div>Confidential & Proprietary</div>		

North America

2015 learnings & insights

1. We need to track impact to focus on fewer higher ROI projects
2. Consumer Marketing is not a gap lever or developer perception driver
3. Awards can steer the ecosystem and contribute to athena growth
4. US, our largest market by developers & installs, is underserved

H1 2016 priorities

1. Quantitatively measure RAPS
2. Invest in fewer higher ROI initiatives that focus on athena growth
3. Expand inspirational programs and drive awareness
4. Invest in US centric drivers

Targets	Programs	Key deliverables	Anticipated impact
Managed partners	<ul style="list-style-type: none"> - Hosted events - Marketing consulting - Co-marketing 	<ul style="list-style-type: none"> - Playtime US & Entertainment partner day - Develop and test consulting concept - Co-marketing, MDF & Featuring programs (CTP, cards) - Editor's Choice/Top Developer 	Awareness Perception Satisfaction Athena growth
Jwaneng 1-9 partners	<ul style="list-style-type: none"> - Developer Insights - Presentation content - Contact completeness 	<ul style="list-style-type: none"> - Set RAPS baseline - Awards - Catalog completeness: Events, Surveys & lead generation 	Reach Awareness Satisfaction
All devs	<ul style="list-style-type: none"> - Industry events - Case studies 	<ul style="list-style-type: none"> - Booth test at GDC - Launch event XFN leadership group & dashboard - Video & written case studies, quotes 	Reach
Not on Play	<ul style="list-style-type: none"> - Industry events - Startup Events 	<ul style="list-style-type: none"> - Deliver workshop & ASK toolkits - Produce startups 3 events 	Awareness Perception

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Global Developer MarComms

2015 learnings & insights

1. Secrets v2 well received (4.3★ to v1's 4.1★) but moving to digital (app) v3 to improve distribution, localization, and measurement amongst other benefits.
2. Expanded email marketing reach from ~1.5K to 300K, localized emails outperform.
3. Paid media driving most video views (now need to improve targeting), want to expand paid media for other content incl. Secrets v3
4. Planning agency/retainer to better scale regular design work (e.g. emails, decks)

H1 2016 goals

1. Final Play narrative agreed and used in comms
2. Baseline study results shared internally
3. Launch key features and raise awareness (e.g. Sidewinder)
4. Launch Secrets v3 beta app with expanded paid media
5. Continue to expand and improve email marketing

Focus areas	Key Initiatives	Anticipated impact
Narrative	Approved Play messaging framework & updated Play pitch deck	Perception
Audience	Baseline study results and expos in LON & MTV	Internal
Content	<ol style="list-style-type: none"> 1. Support product and key feature launches, incl. Sidewinder, I/O 2. Support/create/promote/scale content across channels: category expertise, case studies, SLOCs, new booklets (family/emerging/go global/agency/news) 3. Localize DAC in 15 languages 	Awareness Satisfaction
Channels	<ol style="list-style-type: none"> 1. Secrets v3 launch incl. integrated paid campaign 2. Expand email program: triggered emails, Yoda, games newsletter, etc. 3. Expand use of paid, global, and x-Google channels 	Reach Satisfaction

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Global Families & Edu

2015 learnings & insights

H1 2016 priorities

	<ul style="list-style-type: none"> Increase catalog quality for all DFF devs to improve entire ecosystem Drive installs and conversions for top developers, to inspire the rest of the ecosystem and prove viability of GPFF
--	--

Targets	Programs	Key deliverables	Anticipated impact
Managed partners	<ul style="list-style-type: none"> Category events White Glove Brand Strategy 	<ul style="list-style-type: none"> 1 category event per region (Americas, EMEA, APAC) Co-marketing support for White Glove program and Brand Strategy 	Athena score Store performance
Jwaneng 1-9 partners	<ul style="list-style-type: none"> Category events Case studies Best practices in email newsletter and dedicated emails Press releases 	<ul style="list-style-type: none"> Family Playbook publication and promotion Monthly/quarterly newsletter posts Quarterly video case studies 	Athena score
All DFF devs	<ul style="list-style-type: none"> Industry events Case studies Emails 	<ul style="list-style-type: none"> Updated deck for industry event presentations - 	
Not on Play	Not a target		

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Global Developer Insights

2015 learnings & insights

1.

Lack of structure or quality control in how we approach researching Developers.
2.

Multiple groups targeting Developers for research in an ad hoc manner.
3.

No consistency in defining key concepts such as DSAT

H1 2016 priorities

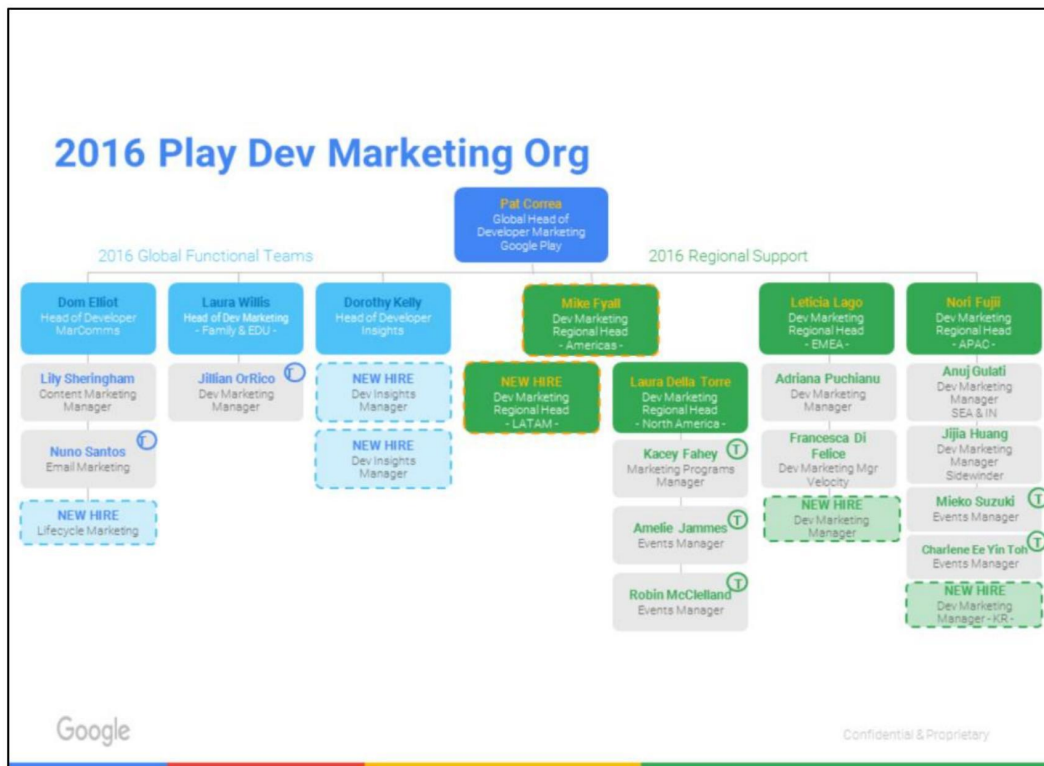
1.

Design tracking and ongoing insight framework and strategy & implement key processes (briefs, etc)

Target	Programs	Key deliverables	Anticipated impact
	Establish DSAT baseline		
	Implement Dev Insights Framework		
	Build Dev Insights infrastructure		

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Can't edit notes from original deck

2016 Dev Marketing Budget* :: APPROVED

	14 (M USD) Total	Owner
Regional		
APAC	4.0	hfujii
EMEA	3.0	lelago
North America	2.5	lkdellatorre
LATAM	0.5	tbd
Global		
Dev Comms	1.5	dominice
Dev Insights	1.5	dorothykelly
Families	1.0	laurawillis

* Original ask 20M (18+2). Excludes co-marketing budget (17M ask).

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Appendix

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In 2016 we will...

1. ... **reach 1M developers** across our channels, marquee programs and xfn collaboration.
2. ... use the agreed **developer narrative** throughout all our developer outreach.
3. ... start delivering **insights and thought leadership content** to our target audiences and internally.
4. ... deepen our **understanding of developers** through the developer insights program.
5. ... determine aspirational **developer perception** and deliver initiatives that will take us there.
6. ... **raise awareness** of key features that impact performance, quality and satisfaction.
7. ... **scale category & market expertise** to many more developers.
8. ... measure **developer satisfaction** and deliver initiatives to improve it.
9. ... expand the global reach, relevance, and efficacy of our **marketing channels**.
10. ... build a happy and smart **team** to increase our output, x-fn collaboration, and impact.

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H1 2016 priorities

1. Launch the Developer Insights Program, establish baseline scores for DSAT and feature awareness, and grow those scores in Q2
2. Strong Play presence at I/O, SXSW (apps) and GDC (games) including our annual Play party
3. Launch category best-practices, events & toolkits (+Playtime, Connect, Bootcamps toolkits)
4. Launch products: Westinghouse, Sidewinder, and Family Library
5. Launch Google-wide dev narrative with Apps Ads Mktg, Dev Plat Mktg, & Dev Rel
6. Launch Secrets app beta
7. Launch the co-marketing brand guide
8. Update developer recognition and awards programs (EC, TD, Google Play Awards @ I/O, etc.)
9. Measure developer perception pre- and post-events
10. PLACEHOLDER: MARKETING CHANNELS ENHANCEMENTS

Google

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Developer segmentation by performance

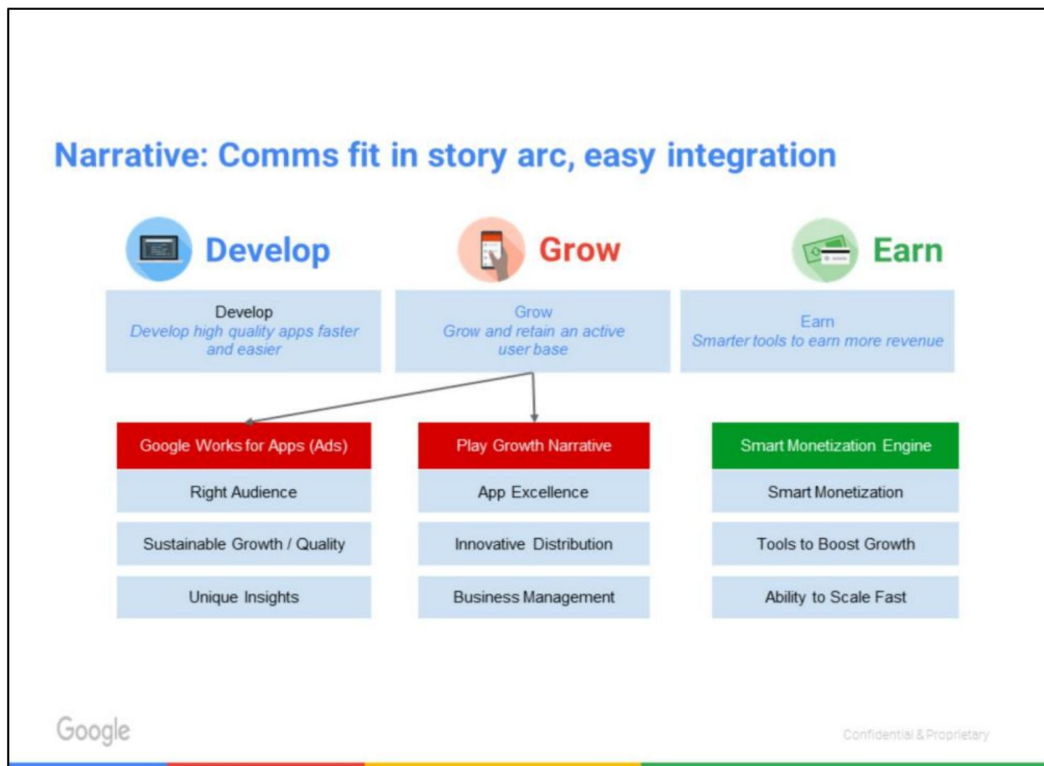
Developer Reach

Focus on ~50K developers covering 99% of total revenues, 97% of total installs, and all top apps in all categories across 44 Litra markets

BD Segments	# Developers	Cumulative Developers	Install Share (%)	Spend Share (%)	Cumulative Installs (%)	Cumulative Spend (%)
1	188	188	39.2%	60.3%	39.2%	60.3%
2	368	556	7.0%	13.6%	46.2%	73.9%
3	377	933	8.4%	5.5%	54.6%	79.4%
4	547	1480	7.6%	3.3%	62.2%	82.7%
5	773	2253	7.0%	5.2%	69.2%	87.9%
6	1226	3479	6.7%	2.4%	75.9%	90.3%
7	2413	5892	6.3%	3.3%	82.2%	93.6%
8	5044	10936	6.4%	2.4%	88.6%	96.0%
9	15725	26661	6.1%	2.3%	94.7%	98.3%
10	29159	55820	3.0%	1.4%	97.7%	99.7%
11	184624	240444	2.3%	0.3%	100%	100.0%

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- We have a narrative / overarching structure for how we talk about our offerings to build apps and businesses
- And it's easy to use to ensure we're all marketing across pillars whoever we're talking to
- You can see here there's a high level view, and all of our other business neatly fall into the buckets - making integration of content and cross sell extremely easy
- Goal is to lock down the messaging hierarchies so all teams can easily use them and go to market more easily together

Id	Date	Text
2	01/04/2016 12:13:35	I'm a little lost with this one :-)
3	01/04/2016 18:58:57	<p>██████████@google.com have you seen this event app that's in development? https://drive.google.com/a/google.com/file/d/0B087Ap9FazO6ckliQzNvQU1jcVU/view They are matching Develop to Cloud, AdWords to Grow, AdMob to Earn. Loads of other products/tools, including Play are nowhere to be seen.</p>
1	01/14/2016 17:54:35	<p>I feel like someone coming to the narrative completely new might be a bit confused about this slide.</p> <p>The Google Works for Apps and the Smart Monetization Engine narratives don't really fit with ours. For example, someone in another team (like LCS or DevRel) would have a tough time deciding what narrative to put in a "Growth" presentation to a developer for example.</p> <p>Might be better not to go into too many of the different narratives here until we have a better idea of how they work together?</p>
3	01/14/2016 17:54:35	Who is leading that app project or how did you find that brief? This is the first I've heard of this.
<div>Google</div> <div>Confidential & Proprietary</div>		

2016 XFN Event Strategy: Bolder, Better...streamlined

PROBLEM	PROPOSAL
<ul style="list-style-type: none"> ● Conflict - dates, content, speakers, attendees ● Who's first wins ● Execution - patchy activation 	<ol style="list-style-type: none"> 1. Top Global 10 Event Strategy X-Stream 2. Marquee Hosted X-Stream [I/O, Playtime, Firebase] 3. Marquee Hosted Ads (GPS, DLS) 4. Customer Forums <p>= less small events, better big moments</p>

Ops: weekly sync x-teams, one calendar in development, event panel for new dev events, Top 10 strategy review


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SO, Events. They're very important for a few reason:

We can tell our story when the industry gathers in a high impact, consistent way -- reach the eco-system, we also find clients

They appear to be one of the primary ways we're reaching app developers -- so reach is huge

But, We have a few problems, my favorite is the 'who's first wins problem' -- which event organisers love as they sell to Google multiple times

So what are we proposing to do?


Have a strategic approach to BOTH hosted and industry events, and be choiceful about what we want to land. This breaks into ~5 categories you can see here

To zoom in that in detail I have another slide, but it's not built for presenting --

2

Event types

Event type	Goals	Teams	Detail
Industry Top 10 Dev/Grow/Earn	Land developer narrative, launch products, big press moments	Dev Plat Play Ads	Game Developers Conference (NA), Casual Connect (NA), Google I/O (NA), SXSW (NA), Mobile World Congress (EMEA), Gamescom (EMEA), The Web Summit (EMEA), Tokyo Game Show (APAC), ChinaJoy (APAC) GMIC Beijing (APAC)
Google I/O		Play, Dev Plat, Ads, Chrome, Android	
Google for Mobile		Play Dev Play Ads	
Google Play Playtime		Play +Dev Plat, Ads	
Google Play Category Days		Play	
Workshops & Bootcamps		Play Dev Rel	


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This grouping of 5 here is how we're looking at the event types we have that are influencing ad spend and monetization decisions and we want ver clear strategies and execution models around each one.

Id	Date	Text
4	01/14/2016 17:57:08	Replaced E3 as we don't have a presence. Neither does Consumer.
4	01/14/2016 17:59:17	In some cases we will also have other teams, like the News Roadshow, which will also include AMP, Newsstand & others
5	01/14/2016 17:59:17	We also need a line item for Connect. Note, we're not supporting workshops/bootcamps this year outside of the toolkit for DevRel
<div>Google</div> <div>Confidential & Proprietary</div>		



So first, I want to let you all know that the marketing teams targeting developers are on it!

We know we have work to do and we're coming together as a virtual team to do that. I estimate we probably own around $\frac{3}{4}$ of the reach / comms from Google to app developers so this is a great start.

2016 Play Dev Marketing Goals & Strategy

Developer Performance

- Equip developers with the content, tools and programs that improve business performance.

Catalog Quality

- Equip developers with the content, tools and programs that improve app/game quality.
- Inspire developers to invest in Android & Play.

Google Outcomes

- Deepen our understanding of developers, everywhere.
- Make sure they are happy with Google Play.
- Measure impact: RAPS and Athena for unmanaged partners.

Do the above with a targeted approach (by geo and/or category).

Google

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Id	Date	Text
1	01/28/2016 00:44:34	Can we own Catalog Quality OKR in Athena Score?: e.g. "Satisfactory" Athena Score for unmanaged partners xx% --> xx%, average Athena Score of the all apps x.x -> x.x. I am afraid that awareness and perception figures can be skewed and not reliable since they are based on survey.
<div>Google</div> <div>Confidential & Proprietary</div>		

REDACTED VERSION

Exhibit A60 to C. Cramer Declaration

EXHIBIT 16

FILED UNDER SEAL

Message

From: Caity Downey [REDACTED]@google.com]
Sent: 7/24/2020 7:37:55 PM
To: Suveer Kothari [REDACTED]@google.com]
CC: Pooja Kapoor [REDACTED]@google.com]; Purnima Kochikar [REDACTED]@google.com]; Tamzin Taylor [REDACTED]@google.com]; Sarah Karam [REDACTED]@google.com]; Danielle Stein [REDACTED]@google.com]; Kenny Chiu [REDACTED]@google.com]
Subject: Next Steps on [REDACTED] Google Play Billing negotiation

Hi Suveer,

We wanted to provide a quick update on the next steps for the [REDACTED] Play Billing negotiation. Product conversations continue to proceed well, without major issues. On economics, [REDACTED] shared its counteroffer, which, if implemented, would create an economic loss for Play [REDACTED] effective rev share, where Google's breakeven point is [REDACTED].

	Google proposal	[REDACTED] initial counter proposal	[REDACTED] full counter proposal
Proposal	A one-time bounty of [REDACTED] price for a subscriber's first paid month [REDACTED] paid for subsequent renewals)	While [REDACTED] was modelling its rev share counter offer, it proposed carving out paying rev share on the following: [REDACTED]	[REDACTED] reduced the effective rev share by asking to create different fees based on who processes the payment. This effectively results in: <ul style="list-style-type: none"> • [REDACTED] processed transactions at [REDACTED] per subscriber • [REDACTED] processed transactions at [REDACTED] per subscriber If Google acquires the user, Google will receive an additional [REDACTED] (marketing bounty) [REDACTED] also asked to [REDACTED]
Effective Rev Share <i>Google's breakeven is [REDACTED]</i>	[REDACTED]	[REDACTED]	[REDACTED]
Other considerations			[REDACTED] Internal investigation found that providing this data to [REDACTED] would be a sizable and highly complex project.

Next steps:

- Finance is modelling counteroffer options, which we will review with you and Don on Monday (7/27) afternoon. Thank you for your flexibility while OOO.
- PlayBD would like to go to BC on Thursday (7/30) to receive guardrails for the negotiation floor.
- If needed, Don may connect with [REDACTED] next week to ensure that we are able to productively move forward before the policy announcement.

Right now, the Play Billing policy announcement is still tentatively scheduled for the week of August 4th, but may be moved out due to the now-postponed Congressional hearing.

Best,
Caity

--



Caity Downey
Top Partners



REDACTED VERSION

Exhibit A61 to C. Cramer Declaration

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Counsel for Defendants

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA, SAN FRANCISCO DIVISION

**IN RE GOOGLE PLAY CONSUMER
ANTITRUST LITIGATION**

THIS DOCUMENT RELATES TO:

*In re Google Play Consumer Antitrust
Litigation*, Case No. 3:20-cv-05761-JD

Case No. 3:21-md-02981-JD

FILED UNDER SEAL
DEFENDANTS' REPLY IN SUPPORT OF
DAUBERT MOTION TO EXCLUDE
TESTIMONY OF DR. HAL J. SINGER ON
CLASS CERTIFICATION

Date: August 4, 2022

Time: 10:00 a.m.

Judge: Hon. James Donato

Courtroom: 11, 19th Floor, 450 Golden Gate
Ave, San Francisco, California, 94102

Case No. 3:20-cv-05761-JD

DEFENDANTS' REPLY IN SUPPORT OF DAUBERT MOTION TO EXCLUDE TESTIMONY OF DR. HAL J.
SINGER ON CLASS CERTIFICATION

1 Plaintiffs' Opposition reveals the deception in Dr. Singer's "deceptively straightforward"
 2 pass-through formula, Singer Reply Rep. at ¶ 72: the formula is "straightforward" only because it
 3 ignores real-world data, accepted economic models, and focal point pricing.

4 For decades, courts have recognized "the difficulties and uncertainties involved" in pass-
 5 through analysis, *Illinois Brick Co. v. Illinois*, 431 U.S. 720, 743 (1977), which makes proof of
 6 antitrust impact "more complex." *In re Graphics Processing Units Antitrust Litig.*, 253 F.R.D.
 7 478, 499 (N.D. Cal. 2008). According to Plaintiffs, however, pass-through is actually "simple."
 8 Opp. at 6. To determine the pass-through rate for an app based on the "Thomas & Friends"
 9 children's television series, Dr. Singer divided the number of in-app purchases for that app by the
 10 total number of items sold in the thousands of other apps in the "Games" category—including
 11 "Doom," which has a "Violence, Blood and Gore" warning, and "Poker—Texas Hold 'Em." He
 12 then subtracted that percentage from 1 and claims the difference is the pass-through rate. That's it.

13 Plaintiffs compare this formula to $E=MC^2$, Opp. at 6, but it is "junk science." *In re*
 14 *Capacitors Antitrust Litig.* (No. III), No. 14-CV-03264-JD, 2018 WL 5980139, at *6 (N.D. Cal.
 15 Nov. 14, 2018). The accepted way to determine whether developers would have changed prices if
 16 service fees were lower is to analyze data on whether developers changed prices when service fees
 17 actually went down, as Google's expert did. Dr. Singer has performed that kind of analysis in
 18 other cases, but he did not do so here. Instead, he predicted the prices developers would charge by
 19 counting how much they sold compared to apps that are not substitutes. Dr. Singer has never used
 20 this formula to calculate pass-through before and Plaintiffs cite no case where a court has
 21 permitted an economist to testify about pass-through using any method remotely like it. Plaintiffs
 22 have not met their burden to show why this Court should be the first.

23 *First*, Dr. Singer's pass-through formula models costs contrary to an accepted economic
 24 principle set forth in his own report: when fees that are a percentage of a firm's prices—so-called
 25 *ad valorem* costs—change, the effect on prices depends on the firm's marginal costs that have not
 26 changed. Dr. Singer concedes that he has not estimated developers' marginal costs. That should
 27 be the end of the matter: if prices depend on costs, Dr. Singer's formula cannot reliably predict
 28 developers' prices when it is missing an input required to model their costs. Plaintiffs' mantra that

1 Dr. Singer has used a “logit model” means nothing. Dr. Singer’s “logit model” is just the formula
2 that Plaintiffs do not argue accounts for developers’ marginal costs distinct from service fees.

3 *Second*, Plaintiffs cannot answer why real-world data show the opposite of what Dr.
4 Singer’s formula predicts. Dr. Singer’s formula predicts pass-through by *all* developers, but, in
5 fact, almost no developers who paid lower service fees in the real world reduced prices. Plaintiffs’
6 speculation about “steering” to platforms *other than* Google Play cannot fill this gulf between Dr.
7 Singer’s theory and reality regarding prices on Play. Dr. Singer testified that his formula predicts
8 pass-through even without steering and that he has not studied how steering affects pass-through.

9 *Third*, Dr. Singer’s logit model is so far off because a fundamental assumption of that
10 model is concededly missing. Dr. Singer testified that a logit model assumes all products in the
11 model are substitutes, but admitted he is not offering the opinion that all apps in each category his
12 model uses are substitutes. Plaintiffs do not argue the apps in each category are substitutes.

13 *Fourth*, Plaintiffs do not seriously dispute that Dr. Singer has not accounted for focal point
14 pricing, which has led multiple courts in this District to reject expert testimony in antitrust cases.
15 Plaintiffs simply argue that some developers do not use focal point pricing. That says nothing
16 about how Dr. Singer accounts for the developers who *do* use focal point pricing. He doesn’t.

17 Finally, Plaintiffs also have not demonstrated that Dr. Singer’s opinions regarding Play
18 Points are reliable. Plaintiffs do not dispute that most users did not enroll in or redeem Play Points
19 or that Dr. Singer has no model to determine whether each consumer would have done so in a but-
20 for world. Plaintiffs cite no analysis by Dr. Singer to support the bare assertion that higher
21 subsidies would have driven enrollment to “near-universal” levels, and cite no evidence to support
22 their speculation that Google would have enrolled all users by default. Opp. at 4.

23 **I. DR. SINGER’S PASS-THROUGH FORMULA IS NOT RELIABLE.**

24 **A. Dr. Singer’s Pass-Through Formula Contradicts Accepted Economic**
25 **Principles Regarding How Changes In Service Fees Will Affect Prices.**

26 If “prices depend on costs,” Mot. Ex. 2, Singer Rep. ¶ 223, then Dr. Singer’s formula for
27 predicting developers’ prices must correctly model their costs. But Dr. Singer’s pass-through
28 formula models developers’ costs contrary to accepted economics he *describes in his own report*.

Google’s service fees are a percentage of the price that developers charge. In economics, a change in a cost calculated that way affects prices proportionally to the firm’s marginal costs. Mot. Ex. 2, Singer Rep. ¶ 225 & n. 495; Mot. Ex. 1, Singer Dep. at 105:8–106:3, 107:23–109:14. Dr. Singer testified that “the pass-through rate is going to be proportional to the other marginal costs,” Mot. Ex. 1, Singer Dep. at 112:13–113:3; *see also id.* at 105:8–106:3, 107:23–109:14, and that “one input into the generally accepted economic model of how the profit-maximizing developer would set [] prices is the marginal costs other than the service fee.” *Id.* at 108:17–25. In light of this testimony, it is puzzling that Plaintiffs argue that Google “can point to no basis in economics” for “the distinction between per-unit costs (costs that are the same regardless of price) and *ad valorem* costs (expressed as a percentage of price).” Opp. at 8. In Paragraph 225 of his report, Dr. Singer uses different math to model each type of cost: the per-unit cost term “C” “is modified” to C*, which is a proportion: $C / (1 - t)$, where C is per-unit marginal costs and *t* is the service fee rate. Mot. Ex. 2, Singer Rep. at ¶ 225.

Dr. Singer testified that his pass-through formula does not account for this standard economic model: “Q. ... in calculating how prices will be set in the but-for world based on a reduction of this service fee, ... in the in-app purchase context, this calculation doesn’t reference the developer’s other marginal costs in any way? A. Correct....” Mot. Ex. 1, Singer Dep. at 186:6–18; *see also id.* at 124:18–127:13. In fact, there is no way that Dr. Singer’s pass-through formula could account for developers’ marginal costs because he has not even estimated any such costs for any developer. *Id.* at 90:20–91:2, 91:22–92:7. Plaintiffs get nowhere by arguing that an economist must still “choose a demand model” to operationalize the model in Paragraph 225. Opp. at 7. No matter what Dr. Singer needed to do to build a pass-through formula, he had to account for the accepted economic principle that changes in *ad valorem* fees will affect prices proportional to marginal costs. However, Dr. Singer has not even measured developers’ marginal costs, let alone accounted for them. The Court can stop there.

B. Plaintiffs’ Arguments About The “Logit Model” Do Not Change this Fact.

Plaintiffs attempt to defend Dr. Singer’s formula as a “logit model.” Opp. at 5–8. But what Plaintiffs call the “logit model” is just a simplified version of a formula described in a 2013

1 article. Mot. Ex. 10, Nathan H. Miller et al., *Using Cost Pass-Through to Calibrate Demand*, 118
 2 Econ. Ltrs. 451, 451 (2013). Dr. Singer’s regression “isn’t measuring how a service fee change
 3 affects the price of an app or an in-app purchase.” Mot. Ex. 1, 164:18–165:12. Rather, in the
 4 regression, “demand for a given App (or In-App Content) is modeled as a function of the price of
 5 that App (or the price of the In-App Content).” Mot. Ex. 2, Singer Rep. at ¶ 235; *see also* Mot.
 6 Ex. 1, at 164:10–17. Dr. Singer’s regression thus measures what happens when prices change, not
 7 whether prices would change if service fees changed. Dr. Singer thus discards the regression’s
 8 results when calculating pass-through, relying solely on his formula: **1 – an app’s unit share of**
 9 **the category chosen by the developer**. That is all the “logit model” is. *See id.* at 116:14–117:9.

10 Plaintiffs’ argument that “the logit demand model causes the absolute level of marginal
 11 costs to drop out of the equation,” Opp. at 7, is exactly why the formula contradicts standard
 12 economics. The standard model in Paragraph 225 of Dr. Singer’s report shows that whether a
 13 change in the *service fee* affects prices depends on the *level* of the developer’s marginal costs.
 14 When those marginal costs “drop out of the equation,” the equation loses an essential input.
 15 Plaintiffs cannot paper over this problem by arguing that a change in the service fee is a change in
 16 marginal costs. In the standard model, whether a change in the service fee changes the
 17 developer’s cost structure depends on the developer’s costs *other* than the service fee. That is why
 18 the expression $C / (1 - t)$ includes separate terms for C (marginal costs) and t (the service fee rate).
 19 Dr. Singer’s formula must account for both terms, but it concededly does not do so.

20 Dr. Singer’s source for his “logit model” makes clear that the model does not account for a
 21 cost proportional to prices like Google’s service fees. In explaining their “General Model,” the
 22 2013 article’s authors state: “Now suppose that a *per-unit tax* is levied on each product in the
 23 model—the tax perturbs marginal costs and allows for the derivation of cost pass-through.” Mot.
 24 Ex. 10, Miller at 452 (emphasis added). The article says nothing about percentage fees (or taxes).
 25 Plaintiffs suggest this does not matter, but they concede that the difference between per-unit costs
 26 and percentage fees “matters” because if a firm’s marginal costs are zero, then a change in the
 27 service fee will not result in a price increase. Opp. at 8.

28 Plaintiffs do not argue that *no* developer’s marginal costs are zero. Reversing their burden,

1 Plaintiffs instead argue that *Google* has identified “zero evidence that any developer actually faces
 2 zero marginal costs.” *Id.* That is incorrect. One of Dr. Singer’s key sources assumes that video
 3 game developers have “no marginal cost.” Jean-Charles Rochet & Jean Tirole, Platform
 4 Competition in Two-Sided Markets, 1(4) *European Economic Association* 990, 1012 (2003).
 5 Another of Dr. Singer’s sources states that the “replication cost of digital goods is zero.” Mot. Ex.
 6 5 at 12. Dr. Burtis similarly opines that “[f]or some apps, subscriptions, and IAPs, marginal costs
 7 are likely to be zero or close to zero.” Mot. Ex. 3, Burtis Rep. at ¶ 143 & n. 151. In response,
 8 Plaintiffs rely on an article whose authors “*assume* that marginal costs may not *necessarily* be zero
 9 in a mobile app setting.” Mot. Ex. 10 at 1474 (emphasis added). The article does not point to
 10 some economic consensus that *all* developers face non-zero marginal costs. There is none.

11 Plaintiffs also fail to show how Dr. Singer’s formula accounts for what he calls “standard
 12 economics” that developers would have incentives to re-invest service-fee savings. Mot. at 8–9.
 13 Plaintiffs argue that “Dr. Singer’s models are agnostic as to how developers choose to use the
 14 portion of savings that are *not* passed on.” Opp. at 9 (emphasis added). That says nothing about
 15 what Dr. Singer did to determine whether developers would not pass on *any* portion of the savings
 16 because they would re-invest all of the savings. Dr. Singer’s model does not address that issue.

17 None of Plaintiffs’ cases referring to logit models, Opp. at 5, involved pass-through or a
 18 formula anything like the one Dr. Singer has used here. The court in *V5 Techs., LLC v. Switch,*
 19 *Ltd.*, No. 2:17-cv-02349-KJD-NJK, 2020 WL 6688732 (D. Nev. Nov. 12, 2020), rejected a
 20 challenge to an expert’s qualifications because he had not “taught a course specifically dedicated
 21 to Multinomial Logit Models.” *Id.* at *2. That is not Google’s argument here. Plaintiffs’ other
 22 cases involved experts for consumer fraud plaintiffs who used logit in connection with surveys on
 23 “willingness to pay.” *Allegra v. Luxottica Retail N. Am.*, No. 17-CV-5216 (PKC)(RLM), 2022
 24 WL 42867, at *56 (E.D.N.Y. Jan. 5, 2022); *In re Dial Complete Mktg. & Sales Pracs. Litig.*, 320
 25 F.R.D. 326, 330 (D.N.H. 2017). Dr. Singer has not done that here.

26 Plaintiffs’ lack of precedent for Dr. Singer’s formula is hardly surprising given the well-
 27 recognized “difficulties with sophisticated statistical methodology” required to prove pass-through.
 28 *Illinois Brick*, 431 U.S. at 742. Plaintiffs’ rejoinder that they are direct purchasers, Opp. at 9,

misses the point that courts have been skeptical of pass-through because “in the real economic world rather than an economist’s hypothetical model, the latter’s drastic simplifications generally must be abandoned.” *Illinois Brick*, 431 U.S. at 742. So too here: Dr. Singer’s “deceptively straightforward” formula is unreliable because it does not account for the accepted economic principle that changes in proportional fees affect prices proportional to a firm’s marginal costs.

C. Dr. Singer’s Formula Does Not Account For Real-World Data.

The proper way to examine what prices developers would have charged if they paid lower service fees is to examine the prices developers *actually* charged when they paid lower service fees. Google’s expert Dr. Burtis did that analysis here and Dr. Singer has done that kind of analysis in prior cases. Mot. Ex. 1 at 134:25–135:5. Here, however, Dr. Singer did not analyze pass-through using actual pricing data, which show exactly the opposite of what his pass-through formula predicts. Dr. Singer’s formula predicts pass-through for all developers, but real-world data show that only a tiny fraction of developers whose service fees Google reduced then reduced prices. Mot. Ex. 3, Burtis Rep. 103, Fig. 13. Plaintiffs engage in drive-by criticisms of Dr. Burtis’ analysis showing this, Opp. at 10, but do not dispute that pass-through was the rare exception rather than the rule.¹ Plaintiffs say nothing about the analysis of Developer Plaintiffs’ expert, Dr. Williams, which reached the same conclusion. Mot. Ex. 6, Williams Dep. at 312:21–314:2.

Plaintiffs assert that “Dr. Singer tested his model on significant actual data.” Mot. at 10. Not quite. *First*, Plaintiffs cite Table 9 of Dr. Singer’s report, Opp. at 11, which refers to six apps. Mot. Ex. 2, Singer Rep. at 115. That is not “significant actual data” or a counterpoint to Dr. Burtis’ analysis of hundreds of thousands of data points. *Second*, Plaintiffs state that Dr. Singer ran “regressions on Google’s transaction data to determine that the logit model was a good fit.” Opp. at 10. But, as noted, those regressions do not measure pass-through.

¹ Plaintiffs argue that Dr. Burtis’s analysis of Google’s 2018 service fee reduction for subscriptions after the first year “ignores that Google Play provides no mechanism for a developer to change second-year subscription rates.” Opp. at 10. Even if that were true, it says nothing about why pass-through was so rare following Google’s 2021 rate reduction that applied to paid apps, IAPs, and subscriptions, or the fact that Dr. Burtis found the same lack of pass through when observing over 400,000 IAP SKUs, none of which were subscriptions. *See* Burtis Exs. 36, 50.

1 *Third*, Plaintiffs get nowhere by arguing that Dr. Singer has shown that sales taxes “are
 2 typically passed on in full.” Opp. at 8. This case is not about sales taxes, which are highly
 3 regulated by state laws that, among other things, often require including sales taxes as a separate
 4 line item on an invoice. *See generally* Walter Hellerstein et al., *State and Local Taxation* 650
 5 (10th ed. 2014). Moreover, Dr. Singer’s analysis of sales taxes and prices for transactions via
 6 Google Play proves nothing about *developers’* pass-through because *Google* charges and collects
 7 sales taxes on those transactions. Mot. Ex. 12, Singer Rep. at n. 537. Thus, Dr. Singer’s evidence
 8 is merely that *some* companies add sales tax to their customers’ purchases. That unremarkable
 9 fact does not show that *all* developers would pass-through *service fees* or explain why the data
 10 show that almost no developers did so when Dr. Singer predicted that all of them would. Firms
 11 may approach service fees differently than sales taxes, which are not at issue here.

12 Plaintiffs fall back on arguing that “broader real-world experiments are not possible
 13 because of Google’s continuous anticompetitive conduct.” Opp. at 11. The only such conduct
 14 they identify is supposed limitations on “steering” users to other platforms using in-app
 15 communications. *Id.* This makes no sense. Developers can and sometimes do charge different
 16 prices in Play and on other platforms. Plaintiffs do not explain why pass-through of lower service
 17 fees on *Google Play* depends on in-app communications directing consumers to *other* platforms.
 18 Dr. Singer thus testified that his pass-through formula does not depend on steering: “Q. Okay. So
 19 fair to say, then, that the [] logit model pass-through formula that you’ve used in your report
 20 depends on steering? A. No, I don’t think it depends on steering because we can come up with []
 21 with explanations for how pass-through would occur in the presence of the anti-steering restraint.”
 22 Mot. Ex. 1, Singer Dep. at 242:15–22. Dr. Singer “would expect pass-through regardless of the
 23 anti-steering restrictions,” *id.* at 242:23–244:3, but that pass-through did not happen. Plaintiffs do
 24 not address that testimony or Dr. Singer’s concession that he has not conducted any empirical
 25 analysis of steering’s effect on pass-through rates. *Id.* at 239:2–13, 240:2–241:1, 246:3–12.

26 **D. Dr. Singer’s Pass-Through Formula Is Unreliable Because a Necessary**
 27 **Condition for the Formula is Concededly Missing.**

28 One reason why Dr. Singer’s “logit model” makes dramatically wrong predictions is that a

1 fundamental condition for the model is concededly missing. Dr. Singer testified that “one feature
 2 of logit demand is that all goods in the market where demand is being measured are substitutes.”
 3 Mot. Ex. 1, Singer Dep. at 158:9–13. As his own source explains, in a logit model, “each good is
 4 a substitute for all others in the choice set.” Gregory J. Werden & Luke M. Froeb, *The Antitrust*
 5 *Logit Model for Predicting Unilateral Competitive Effects*, 70 Antitrust L.J. 257 (2002). Dr.
 6 Singer treats “each of Google’s 35 categories as a separate demand system,” Opp. at 6, but
 7 Plaintiffs do not argue that all apps in each category are substitutes—nor could they, as the
 8 “Thomas” and “Doom” example illustrates. Dr. Singer even admitted he is not opining that apps
 9 in each category are substitutes. Mot. Ex. 1, Singer Dep. at 158:14–159:18. This is fatal to the
 10 reliability of his “logit model.” If the prices of apps in a category are unrelated, then an app’s
 11 share in that category cannot inform what price the app’s developer would charge. Thus, Dr.
 12 Singer’s model predicts very different pass-through rates for the same app in different categories,
 13 showing that the model’s results are essentially arbitrary. *See* Mot. Ex. 3, Burtis Rep. ¶¶ 310–312
 14 & Exs. 54–55; Mot. Ex. 2, Singer Reply Rep. ¶ 79.

15 Plaintiffs’ rejoinder is that “Google’s app categories are economically reasonable
 16 groupings of consumer preferences.” Opp. at 12. But Plaintiffs do not define what that means or
 17 why it is meaningful to predict developers’ prices or pass-through. Dr. Singer did not testify that
 18 one feature of logit demand is that all products are “economically reasonable groupings of
 19 consumer preferences,” and Plaintiffs’ own sources regarding logit models refer to “sets of
 20 substitutes,” Opp. Ex. 13, at 52–59, and “Substitution Patterns.” Opp. Ex. 8, at 45–49. Plaintiffs
 21 cite nothing for their assertion that evidence that “the logit model fits the data” is proof that the
 22 categories “defined the scope of substitution patterns for app users,” Opp. at 13.

23 Dr. Singer cannot reliably testify based on a logit model where an assumption necessary to
 24 that model concededly does not hold.

25 **E. Dr. Singer’s Pass-Through Formula Does Not Account For Focal Point Pricing.**

26 Dr. Singer’s pass-through formula also is unreliable because it “does not adequately
 27 account for the effects of focal point pricing. . . .” *In re Lithium Ion Batteries Antitrust Litig.*, No.
 28 13-MD-2420 YGR, 2018 WL 1156797, at *3 (N.D. Cal. Mar. 5, 2018). Dr. Singer testified, and

1 Plaintiffs do not dispute, that focal point pricing is a “well-established concept in economics,”
 2 Mot. Ex. 1, Singer Dep. at 197:19–198:4, and “an important consideration here.” *Id.* at 202:5–7.
 3 Nor do Plaintiffs contest that many developers use focal point pricing. Yet Plaintiffs do not point
 4 to any term in Dr. Singer’s formula that addresses focal point pricing or any analysis by Dr. Singer
 5 showing that every developer would profit by breaking from focal point pricing.

6 Plaintiffs note that some developers do not use focal point pricing. *See* Opp. at 11, 12.
 7 That says nothing about whether developers who *do* use focal point pricing would stop doing so if
 8 they paid lower service fees. Dr. Singer has not analyzed that issue for any developer, let alone
 9 shown that all developers would have done so. As such, his pass-through “model does not provide
 10 a reliable method for determining but-for pricing in the presence of focal pricing.” *In re Apple*
 11 *iPhone Antitrust Litig.*, No. 11-CV-6714-YGR, 2022 WL 1284104, at *8 (N.D. Cal. Mar. 29,
 12 2022) (excluding expert testimony).

13 **II. DR. SINGER’S SERVICE FEE FORMULA IS NOT RELIABLE.**

14 Plaintiffs concede that Dr. Singer’s formula for calculating Google’s but-for service fee
 15 depends on his pass-through analysis. Mot. at 13. They argue that “pass-through is just one of
 16 many inputs” into Dr. Singer’s service fee formula. Opp. at 14. But Plaintiffs do not dispute that,
 17 if a developer would not pass through a lower service fee, then Dr. Singer’s service fee formula
 18 indicates that Google’s service fee is competitive. Mot. at 4. Thus, pass-through is not just a
 19 variable: it drives Dr. Singer’s result. Because Dr. Singer’s pass-through formula is unreliable, his
 20 service fee formula is, too.² The service fee formula also is unreliable because it uses average
 21 inputs, including an average pass-through rate. Plaintiffs’ argument that this “reflects market
 22 conditions,” Opp. at 15, is a non-sequitur. If anything, the fact that Google reduced service fees
 23 for some developers and not others shows that individualized, not average, inputs are required.

24 **III. DR. SINGER’S OPINIONS REGARDING PLAY POINTS ARE NOT RELIABLE.**

25 Plaintiffs have not shown that Dr. Singer has a reliable method to support his alternative

26 _____
 27 ² Plaintiffs do not dispute that Dr. Singer predicts that Google would have charged service fee
 28 rates for apps in the Entertainment and Music and Audio categories lower than his estimate of
 Google’s costs. Mot. at 12–14. Plaintiffs point to a passing reference to costs ranging from [REDACTED] to
 [REDACTED], Opp. at 14, but that range extends at least as high as the service fee rate estimates.

1 theory that all consumers would have earned more valuable Play Points in the but-for world.
 2 Plaintiffs do not dispute that less than [REDACTED] of U.S. consumers participated in the Play Points
 3 program and only [REDACTED] of U.S. consumers redeemed Play Points. Mot. Ex. 3 at ¶ 355. Nor do
 4 Plaintiffs dispute that Dr. Singer has “not identified any model to determine which users would
 5 have signed up for [P]lay [P]oints in the but-for world,” Mot. Ex. 1 at 288:11–16, 289:17–23, or
 6 “who would have used them.” *Id.* at 297:8–21.

7 Plaintiffs do not identify any basis for what Dr. Singer testified was only a “fair
 8 assumption” that “every member of the putative class would have signed up for the [P]lay Points
 9 program and used [P]lay [P]oints.” *Id.* at 298:22–299:10. Plaintiffs speculate that “Google could
 10 automatically enroll users to a more fulsome program,” as some other companies do. Opp. at 4.
 11 But Plaintiffs cite no evidence—not one Google document and not one line of testimony—that
 12 Google would have done this. They do not explain or show why Google would have made a
 13 different decision than grocery stores that require customers to sign up for rewards programs.

14 Plaintiffs argue that Google would have offered an [REDACTED] discount, which “would drive
 15 near universal participation.” Opp. at 4. But Plaintiffs do not point to any analysis supporting this
 16 assumption and Dr. Singer did none. Plaintiffs incorrectly argue that *In re Optical Disk Drive*
 17 *Antitrust Litigation*, No. 3:10-MD-2143, 2016 WL 467444 (N.D. Cal. Feb. 8, 2016), excuses this
 18 lack of evidence. The Court in *Optical Disk* merely held that consumers could have suffered
 19 injury if evidence showed that they paid more for a product than it was “objectively worth.” *Id.* at
 20 *9. That principle does not support Dr. Singer’s opinion here because that opinion depends on
 21 showing that consumers would have changed their behavior, not merely that they would have
 22 gotten a better deal. Even if Dr. Singer had proof that Play Points would have been more valuable
 23 in a but-for world, that would not prove impact on consumers who never earned any Play Points
 24 because they never enrolled in the program. Dr. Singer has no model or evidence to prove which
 25 consumers would have enrolled in a but-for world. *Optical Disk* did not hold that an expert does
 26 not need evidence to testify that consumers would have changed their behavior.

27 **IV. CONCLUSION**

28 The Court should exclude Dr. Hal Singer’s testimony in adjudicating class certification.

1 Respectfully Submitted,

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